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JPRS 74871

4 January 1980

USSR Report

INDUSTRIAL AFFAIRS

No. 522



FOREIGN BROADCAST INFORMATION SERVICE

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REPORT DOCUMENTATION PAGE		1. REPORT NO JPRS 74871	2.	3. Recipient's Accession No.
4. Title and Subtitle USSR REPORT: INDUSTRIAL AFFAIRS, No. 522		5. Report Date 4 January 1980		
7. Author(s)		6.		
9. Performing Organization Name and Address Joint Publications Research Service 1000 North Glebe Road Arlington, Virginia 22201		8. Performing Organization Rept. No.		
		10. Project/Task/Work Unit No.		
		11. Contract(C) or Grant(G) No. (C) (G)		
12. Sponsoring Organization Name and Address As above		13. Type of Report & Period Covered		
15. Supplementary Notes		14.		
16. Abstract (Limit 200 words) This serial report contains information on the development and productivity of the automotive and tractor industry; electronic and precision equipment; metalworking equipment; construction equipment and building materials.				
17. Document Analysis a. Descriptors USSR Automotive Industry Agricultural Machinery Construction Construction Materials Construction Equipment Electronics Industry Metalworking Equipment Economics b. Identifiers/Open Ended Terms c. COSATI Field/Group 2C, 5C, 13C, 13F, 13H, 13I, 13M				
18. Availability Statement Unlimited Availability Sold by NTIS Springfield, Virginia 22161		19. Security Class (This Report) UNCLASSIFIED 20. Security Class (This Page) UNCLASSIFIED		21. No. of Pages 141 22. Price

4 January 1980

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CONSTRUCTION, CONSTRUCTION MACHINERY AND BUILDING MATERIALS

DEPUTY CHAIRMAN OF UKRAINIAN GOSPLAN COMMENTS ON CONSTRUCTION PROBLEMS

Kiev RABOCHAYA GAZETA in Russian 26 Oct 79 p 3

[Interview with Deputy Chairman of Gosplan for the Ukrainian SSR
V.I. Anan'yev, by V. Litvin]

[Text] [Question] It is known that the work performed by builders is evaluated based upon the volume of work carried out. It is possible for builders to be satisfied with their endeavors once they have fulfilled their plan for volume, even though a number of projects were not turned over for operation. Under the new conditions, the work of construction organizations and ministries will be planned and evaluated not according to volume, but rather on the basis of projects being placed in operation and commodity production. How is this working out in actual practice?

[Answer] The decree set forth a system of planned indices for construction organizations, one which orients them towards the final results of their work -- the placing in operation of production capabilities and projects. The most important such index is that of commodity construction production, which appears as the value of the construction-installation work carried out at enterprises, projects and complexes that are fully prepared to turn out products and also to be turned over to the customers.

This index, together with the indices for the placing in operation of capabilities and projects and for growth in labor productivity and profit, will be used for evaluating the work results of the construction organizations and for the formation of the economic incentive funds.

[Question] An account for a finished project introduces many new factors into the relationships between the builders and customers. In what manner will the expenditures of the builders, including the sub-contracting organizations, be financed?

[Answer] Commencing with the Eleventh Five-Year Plan, the principle of continuous financing will be introduced for construction projects. It will be based upon the title lists, cover the entire period of construction and the amounts will conform with those called for in the estimate.

The expenditures of contracting organizations prior to the period established for the delivery of enterprises, phases and projects on which construction has been completed will be covered by means of bank credit, with use being made for this purpose of funds released by the customer in connection with the conversion over to accounts requiring no intermediate payments.

In some branches, a gradual conversion will be carried out over to the construction of enterprises, using credit presented to the contracting construction organizations in the amount of the full estimated cost of the enterprises. In such cases, the customer will have fully completed enterprises turned over for his use.

The accounts between the general contractor and customer will be carried out for the completed complex of special construction-installation work turned over to the general contractor, work which was fulfilled in the volume called for in the sub-contract agreement.

[Question] Is it advisable to introduce new and more severe economic sanctions for disruptions in the construction schedules? Indeed, the sanctions in use today affect the status of affairs very little. Suppose the fines were not paid out of the state's pocket, but rather were drawn from the material incentive fund of an enterprise...

[Answer] Economic sanctions for disruptions in construction schedules, established by decree, are collected in the form of raised percentages (up to five) for the use of a bank loan, issued to the contracting organizations for unfinished construction. The percentages for bank credit for covering the expenditures of contracting organizations for unfinished construction are applied to the results of their financial-economic activity.

The payment of such fines affects the amount of withholdings paid into the incentive funds.

The builders settle their credit accounts after the project has been fully erected and turned over to the customer. Substantial material losses are sustained if the above work is not completed within the normative or planned period. And conversely, the timely or ahead-of-schedule delivery of a project to a customer for operation serves to strengthen the financial status of a collective by raising its bonus fund.

[Question] One of the principal causes of slow construction rates is a lack of balance between the plans for contractual work on the one hand and the material-technical and labor resources allocated on the other. Share with us, if you will, your thoughts concerning a solution for this problem.

[Answer] Actually, one cause of the non-fulfillment of capital construction plans is a lack of balance between the program for construction-installation work and the plans for material-technical support. Thus, an important step

towards achieving improvements in planning is that of establishing a system for the development of a five-year plan, based upon the delivery volumes for materials, machines, mechanisms and other material-technical resources required for fulfillment of the plan.

Up until recently, upon completion of the economic year all of the approved planning indices lost their force and orders and agreements calling for the delivery of materials, equipment and cable products were cancelled. The termination of these orders and agreements, which meant that products would not be delivered even when funds and a limit were available, leads to their reformulation for the following year.

The new system calls for the manufacturing-ministries to be supplied with the principal technological and power equipment, for the delivery orders to remain active throughout the entire period of construction and for the equipment delivery orders to remain in effect until finally they are carried out completely.

[Question] It would be good also to establish the material responsibility of the territorial organs of Gossnab to the sub-contracting subunits and that of the supplying-plants to the territorial organs of Gossnab for late deliveries of materials. What new developments do you foresee taking place with regard to this problem?

[Answer] In 1981, USSR Gossnab must complete the conversion of construction projects, those included in the state plan for capital construction, over to a system of complex supply. Under this system they will receive all of their materials through the territorial organs of material-technical supply, in accordance with the orders of construction-installation organizations and in conformity with their requirements, as defined in the plans and estimates.

USSR Gosplan, USSR Gossnab, the USSR ministries and the councils of ministers of the union republics must, within a brief interval of time, develop many normative and methodological documents in conformity with the principal conditions set forth in the decree. It is obvious that the problems concerned with tardy deliveries of materials will be reflected in these documents.

[Question] For many years now there has been a critical shortage of the non-metallic materials required for the production of concrete and especially precast reinforced concrete. One overhears this fact being mentioned at almost every construction project. It is possible that this is the result of the quarries and other enterprises being dispersed among numerous executive committees, ministries and departments. And what would be the result if all of these enterprises were transferred over to Minpromstroy-materialov [Ministry of the Construction Materials Industry]?

[Answer] The funds allocated for non-metallic construction materials satisfy fully the republic's construction requirements. The difficulties

encountered in supplying the construction organizations with these products are associated mainly with unsatisfactory work on the part of railroad transport.

With regard to concentrating all production of non-metallic construction materials within the Minpromstroy materialov system, such an action would not make it possible to increase the production volume for these materials, since Minpromstroy materialov for the Ukrainian SSR can limit the capital investments made available for developing this branch.

At the same time, Minenergo, Mintransstroy [Ministry of Transport Construction] and other ministries and departments are investing considerable resources in the development of the non-metallic industry and in this manner they are promoting its further development throughout the republic.

[Question] Dozens of installation subunits perform work at certain large construction projects during the start-up period. It is difficult to coordinate their operations. Administratively they are not subordinate to the general contractor and their responsibility for the timely placing in operation of projects is conditional. It is stipulated in the decree that, commencing with the Eleventh Five-Year Plan, the indices for the placing in operation of capabilities and projects will be established by the installation organizations. In a press statement, the USSR Deputy Minister of Construction, L. Bibin, expressed the need for creating at each construction project a service of the leading sub-contractor of Minmontazhspeksstroy [Ministry of Installation and Special Construction Work]. This service would coordinate the actions of the specialized subunits and settle accounts for the completed projects. What solution can you offer for this problem?

[Answer] At the present time, the relationships between general contractors and sub-contractors and their rights, obligations and responsibilities when concluding and carrying out the agreements of a sub-contract are regulated by a special statute, approved by USSR Gosstroy and USSR Gosplan in 1970 and with changes and refinements introduced into it in 1975.

In conformity with this document, the sub-contractor shares responsibility with the general contractor for the timely creation of production capabilities and projects and their delivery to the customer for complete testing of the equipment and the commencement of production.

The fact that the contractual obligations of the parties are not being observed in all areas and appropriate sanctions are not being employed for non-fulfillment of these obligations is explained by a lowering of responsibility and production discipline among those charged with carrying out the work.

The general contractor, to whom the required rights have been extended, has been, is and will continue to be the head figure at a construction project.

In order to coordinate the work of the general contracting and sub-contracting organizations, the role played by complexes headed by general contractors must be raised. These complexes include representatives from all of the sub-contracting organizations.

[Question] There is such an evaluative index as profit. Today it stimulates only weakly the efforts of builders directed towards raising the effectiveness of capital investments. Contributions to the budget are planned depending upon the profitability achieved. An organization performs well -- it supplies more funds to the budget. If it performs poorly -- a lower profit task is established for it and accordingly a reduced amount is deducted for the state. The Belorussian builders, the first to have developed an account for a finished project, proposed that the earning of profit be directly dependent upon the construction rates and schedules, with a stable norm for contributions to the budget being established, one which will be equal, for example, to 10 percent of the cost of the project. An organization performs well -- it earns more profit; if it performs poorly -- less profit and in both instances the state will receive its full amount. Is this variant acceptable for our republic? If not, then why not? And if yes, then what steps are being taken in this regard by Gosplan for the Ukrainian SSR?

[Answer] Yes. This variant has been approved in our republic in two of the larger construction ministries -- Mintyazhstroy [Ministry of Construction of Heavy Industry Establishments] for the Ukrainian SSR and Minmontazhspetsstroy for the Ukrainian SSR.

The Belorussian experiment is being introduced in two stages. The first calls for the conversion over to planning contractual work based upon the index for relative commodity production, the accounts for the fulfillment of construction-installation work -- based upon enterprises, pilot complexes, phases and projects that have been completed and turned over for operation and which are prepared to produce goods the extension of credit for expenditures for unfinished production of construction-installation work, the use of unrealized profit for covering planned expenditures and for the advance expenditure of material incentive funds, which in part are not covered by balance profit.

Mintyazhstroy for the Ukrainian SSR is presently carrying out preparatory work in connection with converting over to planning normative deductions from profit left at the disposal of the ministry for developing its own productive base, introducing scientific and engineering achievements and economic incentives for its subordinate organizations and enterprises and covering other planned expenditures; norms for deductions from profit for adding to the material incentives fund, the fund for socio-cultural measures and housing construction and the fund for production development.

When an organization performs in a fine manner -- it will obtain more of the profit left at its disposal.

[Question] In connection with the conversion over to accounting based upon completed projects, will any changes take place in the organizational structure of control: ministry - combine - trust - control? Indeed, the need for converting over to a double or triple-element of control was mentioned in the decree.

[Answer] The decree of the CPSU Central Committee and the USSR Council of Ministers entitled "Improvements in Planning and Increased Effect of Economic Mechanism for Raising Production Efficiency and the Quality of Work" stipulates that the conversion over to a double or triple-element system of control over capital construction is to be carried out during the 1979-1981 period.

At the present time, general plans for controlling construction are being prepared throughout the republic.

[Question] A very strict regulation exists at the present time: so many persons to be accepted, so many to be let go, a particular type of control to be created. As has been reported in the press, Minpromstroy [Ministry of Industrial Construction] for the Belorussian SSR, in introducing the method of accounting for finished projects, proposed that it be given the right to make certain decisions independently (within the limits of the wage fund approved by USSR Minpromstroy), such as the number of personnel and the personnel structure required to carry out a task, such that the wage fund economy thus realized is used in conformity with the recommendations made for disseminating the experience of the Azot Production Association at Shchekino. This will produce an economy of approximately 10 percent in the number of workers. Is this factor being taken into account in connection with improving the system of planning?

[Answer] Commencing with the Eleventh Five-Year Plan, the limit for the number of manual and office workers, the overall wage fund and the increase in labor productivity will be furnished in the five-year plans for those ministries and departments engaged in carrying out construction-installation work. During the 1979-1980 period, USSR Gosstroy, with the participation of the construction ministries, must implement measures for the preparation of the estimate-normative base required for the gradual conversion (during the Eleventh Five-Year Plan) over to planning labor productivity in the construction-installation organizations based upon net output (normative) or another index which reflects more accurately the changes in labor expenditures and the wage fund -- according to the norm for a ruble of output and based upon the index used for planning labor productivity.

[Question] Does Gosplan have any proposals aimed at improving the material incentive measures employed for stimulating the builders? Indeed, distribution of the incentive fund in the ministries -- for placing projects in operation, fulfilling quarterly plans or introducing new equipment -- within severe percentage limits, restricts the issuing of incentives to other categories of workers, for example transport and supply workers.

[Answer] The issuing of material incentives in construction organizations is regulated by statutes on the payment of bonuses for certain indices in economic activity and it is also dependent upon the contribution made by each structural subunit to the overall operational results of the organization. In the future, improvements in the issuing of material incentives will be carried out based directly upon work efficiency and quality, the fulfillment of planned tasks and the results of production operations.

Based upon the above-mentioned resolution of the CPSU Central Committee and the USSR Council of Ministers, a new statute was developed on the awarding of bonuses to workers for placing in operation production capabilities and construction projects. The statute was approved on 11 September 1979 by USSR Goskomtrud [State Committee for Labor], USSR Gosstroy [State Construction] and the AUCCTU.

[Question] What is being done and what will be done in the future in order to reduce the number of new construction starts?

[Answer] The draft plan for 1980 calls for a 20 percent reduction in the overall number of new construction starts of a production nature and under the jurisdiction of the Council of Ministers of the Ukrainian SSR.

In the future, the number of such projects for a particular branch will be dependent upon the number of carry-over projects for the year being planned and upon the volumes of unfinished construction for the particular branch.

This work will be carried out in a systematic manner by Gosplan for the Ukrainian SSR, the appropriate ministries and departments of the Ukrainian SSR and the executive committees during the course of developing the draft annual plans and coordinating and approving the title lists for the construction projects for the given year and taking into account strict observance of the norms for the duration of the construction work.

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CONSTRUCTION, CONSTRUCTION MACHINERY, AND BUILDING MATERIALS

MOSCOW'S CONSTRUCTION INDUSTRY JUDGED BY STANDARD NET OUTPUT

Moscow IZVESTIYA in Russian 26 Sep 79 p 2

[Article by V. Romanyuk: "The 'Uneconomical' Is Becoming Economical"]

[Text] Since the start of the five-year plan, the work results of Moscow's construction-industry enterprises have been planned and evaluated according to standard net output.

The perennial problem: the economical is uneconomical....There is the not-so-rare situation where the manager has to decide what should be done: achieve a national-economic benefit but, in so doing, degrade the enterprise's indicators, or act in the old-fashioned way--produce articles more expensively and a little heavier, and live peacefully.

The arithmetic of success is simple here. For example, construction work requires large amounts of lightweight openwork structure. But, despite organizational efforts and appeals, the production of progressive articles had been increasing but slowly, for their manufacture had turned out to be uneconomical for enterprises that receive goals in cubic meters and in gross output. It is extremely uneconomical to make columns with metal cores; columns with flexible reinforcement that saves metal are even less economical; and it is more economical to mold large blocks than small ones. It cannot be denied: no one is his own enemy.

To make something that is economical has been uneconomical up to now--the heads of economists, managers and planners have been broken over this. To tell the truth, it was not always possible to find a way out: economic levers at times have acted to turn a saving into a loss. I was told of the economics of two plants for making prefabricated reinforced concrete: one enterprise worked worse and produced fewer cubic meters, but the wage fund was just the same as the leader's. Why? It turned out that the articles produced were sent out with a marble finish, and the gross value indicator "brought up" the wage fund.

How to get out of this paradoxical situation, which defies common sense? Change the approach itself to evaluating work results? It is tempting! The

Tenth Five-Year Plan for Glavmospromstroymaterialy [Main Administration of the Building-Materials and Constructional-Parts Industry of the Moscow City Soviet] enterprises began with a decisive shattering of existing notions about production planning and work incentives. The operation of 24 plants for prefabricated reinforced concrete began to be evaluated under a new value indicator--the standard net product. But at once the question arose: the difference in labor expenditures still is being hidden; meanwhile--from the point of view of the same labor expenditures--the output of a cubic meter of one product can cost as much as 10 cubic meters of another. A standard equivalent in-kind indicator that averages labor expenditures on the basis of a coefficient of the complexity of the product that can be computed came to the rescue. It became possible, by means of the "standard equivalent in-kind" cubic meter, to compare the labor intensiveness of various articles.

The experiment posed a broad strategic task--to find the possibility for planning production volume in indicators that exclude the use of past labor for evaluating a collective's activity, and, moreover, to create equally profitable conditions for the output of any kind of structure that is included in the plan. To what extent has the set goal been achieved? How does the new indicator "work"?

At the entrance of Kuntsevskiy Reinforced-Concrete Products Combine No 9, a laconic placard greets you: "The plan is the law; to carry it out is a duty; to overfulfill it is an honor!" I was told at the main administration that there is a strong economic services here and that the indicator of standard net output is used as a basis for planning and reporting production volume, labor productivity, determination of the ratio of the pace of growth of labor productivity and the average wage fund, in order to form funds for material-incentives and for social and cultural measures.

The combine's chief economist, R. Ol'khovenko, is energetic, competent and, to all appearances, a modern woman. She has worked as chief of the economics laboratory and as deputy chief of the economic-planning section, and for 5 years now has been chief economist. She came to this post when the experiment was being prepared. All this numerical gross output (with double accounting--under the old and the new systems) goes through her. Having assimilated excellently the essence of the new way, she has participated in working out the procedures and in improving the experiment, and she is on a par with the best scientific personnel of Gosplan and Goskomsen [State Committee for Prices].

Rimma Nikolayevna recalls with a smile how it all began. They had worked a quarter in accordance with net output, when chief of the second department, V. Lug, turned up in the plant administration. He came displeased: again it was unprofitable! The quarter's plan had been exceeded, but the bonus fund was even reduced! The department had produced basement wall blocks meticulously..., and the plan was exceeded in kind. It was recomputed with Rimma Nikolayevna, and again this picture emerged: the department, from force of inertia, had striven for output low in labor intensiveness, with a low coefficient of complexity. Under the new accounting it

turned out that the plan for standard net output had not been reached by 1½ percent. The department chief went away perplexed. He thought that only the facade of the figures and the names of the indices had been changed, but the essence of evaluating the collective's labor contribution had been changed.

"We will still 'float' with these indicators," chief of the other department, V. Miklyayev, told me with a certain irritation. "Previously, simple and heavy items were more profitable, and then we saw that they were profitable but labor intensive. It comes down to this: if it's more complicated, it's more profitable. And if it is the other way round? So how will it be now? Labor-intensive elevator shafts were taken from production, and blower modules were placed on the assembly line. New technology, new equipment, the nature of output is different....How the net output indicator will work--it is difficult to say ahead of time."

"But, why is it so difficult?" R. Ol'kovenko wonders. "Miklyayev is cunning. At first the production cost will be higher and profit will be reduced. It is necessary to develop and introduce rationalization into the process and to get along with the same manpower. When they introduced a new casting yard, six workers were freed and productivity rose by 30 percent. And now weak spots must be found and eliminated."

And there is still another position--that of chief of the first department, A. Baranchikov. When I went into the department for the first time, I saw the chief himself directing the milling men. It turned out that he himself makes molds. His deputy quite often changes places with a skilled worker. The departments work with minimum manpower, to carry out a strenuous plan that is increasingly difficult. And a mutual understanding between the department chief and the chief economist still has not been achieved. But yet there is no contradiction in the main point.

"Everyone understands: in order to give net product, it is necessary to carry out the plan for the product mix: everything is based on that," says A. Baranchikov. "We have at our disposal a set of molds for four lines. Under the gross output approach, we made expensive slab. This 'ruse' no longer gets by."

Working under the new system, the Kuntsevskiy combine has sharply improved plan fulfillment for product mix; the deadlines for outfitting facilities have been reduced by 20 percent, and there are, practically, no longer "profitable" and "unprofitable" items. It became easier to solve questions of assimilating new types of output. Since the start of the five-year plan 34 standard sizes have been introduced at the combine. The need for administrative measures to insure the output of labor-intensive articles is dispensed with, and the builders have stopped fulminating because of interruptions in the outfitting of complicated line items.

Under the experiment's terms, intrabrigade economic accountability has revealed its advantages more completely. This is what was shown by an analysis that was conducted for two economically accountable collectives. The

output in 1978 of V. Boyarantsev's brigade, which was working steel billets for reinforcing cage, was 109.1 percent of 1975's, manpower was 78.6 percent, and metal savings rose 5.1-fold. Product output by D. Kamokina's brigade, which prepares concrete mix, was, respectively, 111.3 percent, and manning was 66.7 percent, while savings of cement, sand and crushed rock grew 1½-fold. In 3½ years the combine's labor productivity reached practically the level planned for the end of the five-year plan; it was planned to release 185 persons provisionally, but today 193 have already been released.

The secretary of the combine's party bureau, G. Batakov, had just come back from vacation, and he went at once to the chief economist: how were things there with net output. He himself had on the table a thick notebook in which columns of figures dazzled the eye.

"I watch the dynamics, of course," he says, raising my unspoken question. "All the technical and economic indices are at hand--without clarity in this question no other questions can be solved today. Our collective is among the initiators of the movement to retain personnel and to save labor resources, and indeed we have three-shift operation, and people do not work in white coveralls. We are trying to make working conditions socially attractive, to introduce into practice good rituals that are dedicated to workers and the issuance of the first wage rate.

Many measures bear not only economic consequences. The nature of the labor of the rigging workers has changed. While previously they loaded everything in succession, and the workers themselves knocked out the frames needed, now the rigging worker puts them in special containers in strict accordance with the technological scheme and accounts for the release of the frames by types and amount. Rigging worker Ye. Rubtsova of the fourth reinforcement department says that the work has, of course, become more interesting and responsible, but it would be necessary to increase the wage rate. Bonuses under the brigade contract are no more than 10 rubles, and then provided the department saves metal. A prerequisite for payment of a bonus in the department is not one cubic meter of rejects! Apparently a correct proviso, but rejects can also occur through no fault of the brigade. "Well, it would be all right if we left out an embedded part," says brigade leader G. Gavrilov, "or committed a violation of the technology. But if a belt is broken or the power is turned off, the slab is not completely shaped. And the bonus is lost."

The chief economist confirms that it is all true, initiative has grown and the material-incentive fund has become inadequate. It is impossible to pay from the costs of the materials saved. Gosstroy does not grant this "kindly." But a source must be found! The chief "methodologist" on net output--deputy director of the KTB [design and technology office] of Mosorgstroyaterialy V. Kovalenko--came to the combine. He made the comment: a percent must be given for losses of concrete. We went around the first department with him, and he could not believe that there was no waste. "Previously, you know, they went for the concrete," R. Ol'khovenko confided, "but now you will not even find drip marks. Our people's conscientiousness is higher, but the incentive has fallen behind...."

But not only the incentive has "fallen behind." The lack of a scales room for weighing instruments compels materials expenditures to be accounted for proportionally according to the concrete produced. Who has a saving? Everyone, and those who have produced the most concrete saved most of all. But perhaps someone has an overexpenditure? In order to take the next step--from brigade economic accountability to the brigade contract--it is necessary above all to provide the section with batchers and scales and to arrange for the accounting of materials consumption by brigades.

After beginning from the simple, more correctly, from what today seems to be simple--from individual standards for net output that are found by subtracting material expenditures from the wholesale price, Moscow's construction industry today has already converted to the development of average branch norms that are mutually coordinated with wholesale prices. A decisive turn to the new methods of management that were introduced by the decree of the CPSU Central Committee and the USSR Council of Ministers about improving planning and bettering the management mechanism has been made. Deputy director of Mosorgstroyaterialy's KTB V. Kovalenko laid before me several books of wholesale prices for prefabricated reinforced-concrete structure that had been worked up under the new methodology and approved by USSR Goskomtsen. They will go into effect 1 January 1980.

"We are proud of these documents," he says. "For the first time, price lists and average branch standards for net output have been worked out on a unit basis. We will operate on the new principles during the current five-year plan. They not only include equally profitable terms for the output of all structure but also eliminate the unprofitability of some articles and the excessively high level of profitability of others."

We add that the present variant, which is not completely polished, has been proven, that the indicator of standard net output characterizes better than others the actual work efforts of the collective and makes profitable the enterprise that is profitable to the national economy. While in 1975, prior to the start of the experiment, the capital's construction industry mastered 350 new types of articles made of reinforced concrete, in 1976, when the experiment was begun, the product mix was 685, and in 1978 it was 710. Previously, out of 4,500 specific items, interruptions occurred for 120 line items. Now, out of 6,000 line items, only 6 were not carried out (1 out of 1,000!). The materials intensiveness of prefabricated reinforced concrete was reduced by 2 percent, enabling 64,000 tons of cement and 9,000 tons of metal to be saved. Labor intensiveness was reduced for previously mastered output, which is especially important where there is a shortage of the work force.

These figures are totals and averages. In actual practice, there is still a large number of questions. An analysis of the preceding stage of the experiment indicated that, although material expenditures beyond the framework of the standard were eliminated, they actually continue to affect many indicators. Not everything, as they say, was chopped off at the roots: it turned out, for example, that setting profit norms in prices that relate to the full production cost, as was done previously, encourages and orients

the enterprise to the consumption of costly materials. This occurs because the production cost includes material expenditures, and that also means past labor. As is said, you drive the devil away from the door, but he tries to climb in through the window....

It was noted at the Kuntsevskiy combine that net output does not cause an expansion of materials intensiveness but reveals an "increased interest" toward labor intensiveness (the more labor that has been invested, the greater the wage fund). Does this mean that the debate about the "profitable" and the "unprofitable" has not ended?

"Yes, the experiment continues," confirms R. Ol'khovenko, and not a trace of annoyance is seen. "We have to understand that the new criteria for evaluation have not thrown us backward, but, on the contrary, have helped good positions to be consolidated. During the Eleventh Five-Year Plan we will become like a production association, we will take three plants into our ranks. We will work together, and we have become accustomed to work well."

11409

CS0: 1821

CONSTRUCTION, CONSTRUCTION MACHINERY, AND BUILDING MATERIALS

INCREASE IN HOUSING COMPLAINTS

Minsk SOVETSKAYA BELORUSSIYA in Russian 19 Oct 79 p 2

[Article by M. Marmalyukov, head of the general division of the Gomel'skaya Oblast Committee of the Communist Party of Belorussia: "Party Life: The Committee's Mail"]

[Text] At the beginning of this year we called attention to the appreciable increase in the housing complaints received by the obkom from small families and people living alone. Why? The picture revealed by the search to answer this question was as follows: construction of one-room apartments in the city of Gomel' has been curtailed in recent years. Whereas in 1976 the number built represented 9.3 percent of the total number, their share in 1978 was 7.8 percent. Housing cooperatives have ceased altogether to plan small-size dwelling units. As a result the number of those needing such space has increased rapidly. In 1976 single persons and small families in the city's rayon ispolkoms represented 20 percent of the total number of those in need of housing, but in 1978 they represented 35 percent. A study of this question also revealed the other side of the coin: large dwelling units needed for large families are not being built either.

This situation came about because two divisions of the gorispolkom--for capital construction and for housing records and distribution--are doing their work without mutual contacts and coordination. The former would accept plans of houses without taking into account what sort of dwelling units are needed, and the latter would distribute what it received without attempting to affect the planning of future housing construction in the city.

The party obkom has, of course, intervened in this matter. The plans now being selected in the city are those in which the mix of dwelling units corresponds to the needs of applicants on the list to receive housing.

The letters of the workers remind us of many important and interesting issues in practical activity, and they are being taken into account by divisions of the party obkom in their everyday affairs. The workers have helped to reveal serious shortcomings in work with personnel in Gomel'skiy and Lel'chitskiy rayons and oversights in the economic activity of a number of construction organizations and kolkhozes and sovkhoses.

Guided by the demands of the CPSU Central Committee and the instructions and recommendations of Comrade L. I. Brezhnev, the party obkom has been persistent in improving its work with letters received and to see that each of them is carefully and seriously examined not only by party committees, but also by local Soviets, trade union and Komsomol organizations and all economic officials.

The plenum of the Belorussian CP Central Committee emphasized in its decree "On Further Improvement of Work With Letters Received and Improvement of the Reception of Workers in Party, Soviet and Other Organizations of the Republic" the need to systematically analyze the character and content of the workers' letters and verbal communications, to study and summarize more thoroughly and competently the proposals, critical remarks and requests of the workers, kolkhoz members and the intelligentsia, and to make better use of the results of the analysis for further improvement of the style of party leadership.

There would seem to be no need to enumerate here the details of the measures recently taken along these lines by the party obkom and city and rayon committees. I will only note that these measures pursue a single goal: a responsive attitude toward people on the part of responsible officials at every level. Behind every letter and every verbal complaint we must see a living person with his needs and interests and in every critical remark to find the grain of truth, remembering that a man's appeal to a party or Soviet organ is ordinarily dictated by concern about public and government affairs.

A strict system has been set up in the obkom, gorkoms and raykoms of the party to keep records of letters and to check on the consideration given them. City and rural committees report regularly, once a quarter, to the obkom on a specific form which shows the number and character of the letters and all the work done with them. It has become established practice to analyze the causes giving rise to complaints. The data of these analyses and also the results of a check on individual letters are submitted for consideration to the bureau of party committees and ispolkoms of Soviets and are discussed in production conferences. For example, in the first half of this year the bureau of the party obkom examined 9 such questions, the ispolkom of the oblast Soviet discussed 11, and the bureau of party gorkoms and raykoms discussed 130. The work being done with letters received was discussed on three occasions in conferences of secretaries of party committees and chairmen of city and rayon ispolkoms.

In addition to the general analysis of the mail, which I mentioned above, we periodically classify letters according to the most crucial issues: for example, housing construction and distribution and consumer services for the public, keeping a separate record of those which are recurrent. Tabulations by topics are presented for consideration to the bureau or secretariat of the party obkom, and some of them are sent to party committees and oblast organizations for steps to be taken.

The system of reporting and regular analysis on letters received which we have established makes it possible for the party obkom to have a better knowledge of the situation at the local level and to take timely steps to correct the specific shortcomings. We are now able to intervene more vigorously in the practical affairs of individual collectives. Whereas in 1975 the work with incoming mail and the results of a check on some of them were taken up on 8 occasions in sessions of the bureau and secretariat of the party obkom, the figure for last year was 25. Gorkoms and raykoms of the party last year discussed 153 specific questions arising out of letters from the workers.

One of the causes giving rise to complaints, as shown by a study of the state of affairs at the local level, is that at certain enterprises there is no proper procedure for dealing with complaints. Certain oblast organizations and departments discounted the demand made by directors of their subordinate enterprises and organizations. In some places days and hours when workers and employees are received concerning personal matters have not been established. The decision was made to bring together in the party obkom those who are responsible for shortcomings of this kind, to call attention to their oversights, and to agree on specific steps to improve the state of affairs. All of this has brought constructive results.

The party obkom has tightened supervision over the examination of complaints and petitions submitted to other organizations for action. Directors of enterprises, kolkhozes and sovkhoses and key officials of party organizations have been made more responsible and accountable for these affairs. Now two-thirds of the letters received are dealt with directly by the obkom headquarters or by other organizations under its supervision.

The aktiv has now become more involved in handling incoming letters; voluntary commissions have sprung up in association with party committees. Rayon newspapers and the oblast newspaper have written about the activity of these commissions in the Tsentral'nyy Rayon Party Committee in Gomel' and the Dobrushskiy and Rogachevskiy party raykoms. The experience of the commission associated with the Tsentral'nyy Rayon Party Committee has been summarized by the obkom, and a special letter on this matter approved by the obkom secretariat has been sent out to all party committees.

Following the lead of the gorkoms and raykoms, large primary party organizations have begun to create such commissions. The obkom has supported them. Now voluntary commissions to monitor work with worker letters have been set up in 973 party organizations, and more than 6,000 members of party gorkoms and raykoms, deputies of local Soviets and other activists have become involved in their activity. Recently a conference-seminar of the chairmen of these commissions was held in the obkom headquarters; they exchanged experiences and cleared up matters they had not fully understood.

One of the most important conditions for averting complaints is to pay closer attention to people's needs and to study their disposition. The

party obkom is accordingly striving to invigorate the work of information and propaganda groups, the holding of evening question-and-answer sessions in which competent officials would participate, and so on. Reports by senior officials of certain departments to work collectives are being organized in the oblast. Examination of individual letters in conferences of collectives is becoming increasingly frequent practice; secretaries of the party obkom also take part in their proceedings.

The workers' criticisms and specific recommendations have helped to correct many mistakes. This is indicated by an analysis of incoming mail. For instance, whereas in the first 6 months of last year the obkom received 217 complaints concerning job placement and labor conflicts, the number this year was 169. There has also been a drop in the number of complaints concerning improper actions by directors of construction and municipal-service organizations, kolkhozes and sovkhozes, and administrative agencies.

At the same time certain key officials try to cover over their lack of attention to so-called petty human needs with their concern about large public affairs, about fulfillment of plans, losing sight of those who fulfill the plans. It is for this reason that quite a few letters are at present being sent from our oblast to superior party organs and government agencies, republic and union departments, for which we were justly criticized in the 19th Plenum of the Belorussian CP Central Committee. In our practical work we are drawing the appropriate conclusions from that criticism.

The plenum summarized the important and fruitful activity of party and Soviet organizations in an important area of activity, the processing of worker letters, and it outlines specific ways of correcting the shortcomings. We are seeing to it that the careful and punctual consideration of every recommendation, every request and every piece of criticism be an inviolable law governing our activity. The plenum of the Belorussian CP Central Committee emphasized that well-organized work with incoming mail presupposes skillful use of the recommendations and criticism set forth in them in order to activate existing production potential and to discover and prevent shortcomings in good time. We see this as the purpose of our work with the letters of workers.

7045
CSO: 1821

CONSTRUCTION, CONSTRUCTION MACHINERY, AND BUILDING MATERIALS

STREAMLINED PLANNING ACCELERATES EXCAVATOR PLANT CONSTRUCTION

MOSCOW STROITEL'NAYA GAZETA in Russian 12 Oct 79 p 2

[Interview with USSR Gosstroy Deputy Chairman A. Borovoy, USSR Deputy Minister of Construction of Heavy Industry Enterprises M. Shil'dkrot, USSR Deputy Minister of Heavy and Transport Machine Building V. Nalivayko, Glavkrasnoyarskstroy Chief V. Abovskiy, Glavpromstroyproyekt Chief V. Zubkov, Soyuztyazhmashproyekt Association General Director Z. Napetyan, and Moscow Promstroyproyekt Director Yu. Vostroknutov, by B. Fayans: "A Plan Saves Years"]

[Text] Accelerated construction of the largest industrial complex--a heavy excavator plant comparable in its scale to the domestic giants of motor vehicle building, the Volga Motor Vehicle Plant and the Kama Motor Vehicle Plant, has been started in Krasnoyarsk as a model and a demonstration of such construction.

The entire enterprise is to be placed into operation within five and a half years--that is, 1.7 times faster than required by the standards. The construction site must become a school of highly productive labor, a standard in the use of progressive structures. It must also serve as an example of highly effective management.

The new approach to the work and some of the innovative trends permeating through all of the planning and construction of the excavator plant were the topics of discussion in a business meeting.

The Sverdlovsk Uralgiprotyazhmash [not further identified] is the general planner of the Krasnoyarsk Heavy Excavator Plant. The Moscow Promstroyproyekt [State Planning Institute for General-Construction and Sanitary-Engineering Planning of Industrial Enterprises] is responsible for matters concerning construction of the complex's main facilities, for the master plan of the zones surrounding the plant,

and for the organizational plan for construction. In order to insure a high technical level and coordination in the decisions made, the USSR Gosstroy and the USSR Ministry of Heavy Machine Building ordered the Moscow Promstroyproyekt to perform the functions of the principal organization responsible for the plant's construction planning.

The Krasnoyarsk Heavy Excavator Plant is situated on an area of 220 hectares. The buildup density is maximum. Another 60 hectares have been reserved for the enterprise's future development.

There are plans for building nine large production buildings with a total area of about 800,000 square meters, 19 administrative and personal services buildings, two engineering and laboratory centers, many auxiliary buildings and structures, and a residential quarter with full cultural and personal services.

[Question] And so, there are plans for almost halving the Krasnoyarsk plant's construction time. What reasons are there for this?

Nalivayko: First of all there is the significance of the enterprise. Siberia, and especially Krasnoyarskiy Kray, possesses unique fuel, power, and metallic ore resources. Preferential development of the region's machine building base, and primarily mining machine building, is a necessary prerequisite of an integrated approach to increasing the kray's industrial potential. This is why we must build the Krasnoyarsk Heavy Excavator Plant as quickly as possible. Large open-cut mines in the eastern regions of the country have an acute need for the equipment it will be producing.

Napetyan: There are also considerations which go beyond this concrete case. We can no longer condone the usual practice of planning and building industrial complexes. It is too slow. It takes about a year to develop the technical-economic grounds for construction of a large enterprise. This is followed by a lengthy period of coordination. As an example we must coordinate the TEO [technical-economic grounds] with 13 Gosplan subdivisions. This takes up another year. The next phase of the work is the technical plan. This takes about 1 to 2 years. It also takes time to produce the working drawings. Thus construction does not even begin until the fifth, and sometimes the sixth year.

Vostroknutov: The speed issue is very important. To underestimate the pace required by the swiftness of the scientific-technical revolution means to live with obsolete notions. The Krasnoyarsk experiment is intended to proceed at a modern work pace, with more efficient organization.

Zubkov: In a word, we had to make serious corrections in the usual practice. And so we decided to create a model of an entirely different approach to the work, using the planning and construction of a heavy excavator plant as the example. The USSR Gosstroy offered many suggestions in this regard.

Borovoy: First of all I should note that the entire sequence of actions and the structure of mutual relationships were fundamentally altered in the planning and construction of the Krasnoyarsk complex. We can distinctly see the internal impact of the "transpositions" made. The TEO are interpreted and handled not as something in the preplanning stage, as something approximate and incomplete, but rather as a fundamental document in which the most important issues associated with the planned construction have been analyzed and resolved. And once this is so, the need for writing a multi-volume technical plan disappears.

In turn, this fact has made it possible to change the sequence of events and concurrently reduce the intervals between them. After all, it was precisely the waiting for completion of the technical plan and the lengthy procedure of its expert examination and approval that stood as an obstacle in the way of construction for a long time. Now however, we can develop the working drawings and initiate the construction at the same time, all the more so because one more fundamental change has been made: The plant's builders were acquainted with the plan not at the end of this chain of events, but rather in the first days of the enterprise's planning, in which they participated.

All of this creates the possibilities for almost halving the plant's construction time.

[Question] It is obviously no accident that the technical plan has evolved as a stage in the many years of construction practice. Are we not taking a certain risk by erecting such a large plant without a technical plan?

Nalivayko: That depends on what you call a risk. Some particular problems may slip by the developers for a while, and possibly some things will have to be elaborated upon and improved. But I would say that all of this is a minimum risk. After all, changes dictated by the circumstances are made as a rule even in technical plans.

[Question] But aren't technical plans good because all decisions made are spelled out in detail and checked over? The TEO, meanwhile, do not contain concrete studies. In the words of cyberneticists, they contain a low volume of information.

Zubkov: No one is going to argue that technical plans are totally useless things. True, they are more-detailed. But are we not paying too high a price for such detail? It is precisely in the slowness of all of the processes that the main danger arises: Because of the slowness of the process the plan is constantly threatened by obsolescence.

Borovoy: It should not be surmised that we have estranged ourselves completely from this stage in our work on the Krasnoyarsk plan. All we have done is taken what is most significant in the technical plan and situated it in an earlier stage, one usually referred to as the preplanning stage. Thus it transforms into the planning stage. This also means that the cumbersomeness of the study has been eliminated. A modern plan can and must have a minimum document volume.

Vostroknutov: Let me cite this one example. Nineteen administrative and personal services building must be built on the Krasnoyarsk plant's territory. We have decided upon the same building type for all of them. Thus the volume of needed documents has been reduced dramatically.

[Question] What can we say concretely about the reliability and effectiveness of developing the TEO for the excavator plant?

Nalivayko: The plant's production will not only correspond to the technical level of analogous machines produced by the best foreign firms, but it will also surpass this level in relation to a number of parameters. All worker conveniences are being created in the enterprise. The overall technical level of the plant is extremely high. For example 60 percent of its equipment consists of program-controlled machine tools, and automatic and semiautomatic machines. There is also to be a closed water supply system--no wastes at all will be discharged, and no harm will be done to the environment.

Vostroknutov: I should add that the structural systems employed at the construction site are distinguished by a high degree of plant prefabrication, ease of installation, and sensible use of metal. Let me enumerate just the main technical concepts.

The "heavy" buildings are to consist of steel frames with walls and ceilings made from shaped sheet steel; buildings of "medium heaviness" will consist of a reinforced concrete frame and vertical reinforced concrete panels reaching the full height of the buildings; the buildings of auxiliary shops and the warehouses will be made of light steel structures delivered as single units. We have abandoned bricklaying almost entirely.

Abovskiy: I would like to add from my side that the high level of unification of the structural elements and standardization of the buildings has allowed Glavkrasnoyarskstroy to organize independent specialized construction processes. It has also become possible to assimilate production of new structures in parallel with the planning.

[Question] But there are still many unsolved problems in the developed TEO. They were examined relatively recently by the Main State Expert Commission of the USSR Gosstroy, which made a number of significant remarks.

Napetyan: Yes, there were remarks. As an example the technical-economic indicators for steel-casting production at the Krasnoyarsk plant were initially below those attained in the plans of similar shops of the Ministry of Chemical and Petroleum Machine Building and the Ministry of Machine Tool and Tool Building Industry. The appropriate work has been done to correct most of these problems. The TEO have already been coordinated with USSR Gosstroy and USSR Gosplan.

Borovoy: The flexible work system proposed in the Krasnoyarsk experiment is also successful in that interaction between experts and planners has become closer. After all, the experts were able to state their recommendations at an earlier stage of work on the excavator plant's TEO. For example they helped us determine the cost of the plant's construction more specifically, and it was with their help that the enterprise's electric power supply system was reworked. And on the whole the Main State Expert Commission gave a high evaluation to the Krasnoyarsk plant's TEO.

[Question] Now a little bit about the subcontractor's participation in the planning. I must admit that although this is something to make us happy, it is startling as well.

Zubkov: I can understand that it would make you happy. But what is so startling about it? After all, is it not the logical way?

[Question] Because it is commonly known that planners are the ones that are supposed to be handling the first stage of a construction project. We have never encountered situations where builders have been responsible for the initial stages of planning.

Abovskiy: Builders must participate in the planning. Everyone was aware that the TEO would spell out the choices of construction systems and their components, that they would reveal factors influencing the work pace, and that they would establish the optimum schedule. How can all of this be done without the builders?

We have departed from the traditional scheme--we did not wait for the finished plan before beginning to analyze it and initiating that procedure which we refer to as "issuing remarks." What benefit could there be in remarks made on a plan that is already finished? No, we included ourselves in the work on the TEO in the very first days. Even before the planning was started the Ministry of Heavy and Transport Machine Building permitted the Glavkrasnoyarskstroy to organize an administration to handle construction of the excavator plant. This administration subsequently became a real partner of the planners.

Zubkov: Our joint activity mainly took the form of planning and programming the forthcoming operations of mutual consultation, and of contingency planning.

Shil'dkrot: Being the director of the central interdepartmental staff, I would like to note the multifacetedness and complexity of the task. There are 26

planning and scientific research organizations taking part in the work. The staff has played a guiding role in solution of the fundamental problems concerned with planning of the plant. In precisely the same way the staff has been responsible for coordinating the decisions with construction and installation organizations. Whenever disagreements arose, they never had to appeal to any sort of higher levels of administration.

Abovskiy: It would be pertinent to recall here that a simulation model embracing all aspects of the task--construction planning, construction itself, its control, and supply--was created with the participation of Glavkrasnoyarskstroy in a short time on the basis of a program drawn up with the help of the modern methods of mathematical economics. Four principal variants and 14 subvariants were "played out" with this model. As a result we selected the best variant.

Shil'dkrot: An entirely different type of relationship, a different sort of atmosphere has evolved on the basis of all of this. The division made between planners, who create, and builders, who do, has disappeared. All are now creators. And all are now doers in their own areas.

It would also be interesting to recall some of the unique features of joint work which created the foundation for cooperation between the partners. Several general fundamental documents were written. The first of them was the "Fundamental Directions in the Plant's Construction Planning." Directions! This document discussed the directions specifically. Then a second document was submitted for inspection by the central coordinating staff--the fully concrete "Proposals on Organizing the Plant's Planning and Construction." This is extremely significant. The proposals were coordinated. And, finally, a third document was submitted--"Planning specifications." As we can see, the content of the TEO takes on a new light. The TEO are not only a plan or model of the complex being erected, but also a model of construction, a model of administration.

The deadlines for erection of the facilities, their readiness for operation in the different years of construction, the materials, and the schedule of their deliveries were clearly spelled out right in the initial stage.

Abovskiy: One more thing: Because the model foresees breaking down the construction process into generations, complexes, units, and subunits, and because jobs are to be highly specialized, we can employ a parallel flowline method in the work. Presence of large specialized organizations of the USSR Ministry of Installation and Special Construction Work and of other ministries at the construction site increases the possibilities for maneuvering the resources and makes the entire structure and its reactions to changes arising in the course of construction more dynamic, just like in a probability model. Integrated mechanized teams are being created within the specialized subdivisions. These teams will be responsible for entire sections of the work from start to finish, and they will operate on the basis of yearly schedules and team and section contracts.

The role of the general contractor has changed somewhat correspondingly. Now his main task is to coordinate the actions of all executors and to complete work not within the realm of any organization in particular, work that cannot be specialized. The construction plan calls for filling positions such as chief builder and chief installer.

I would like to take advantage of the moment to suggest a proposal. The general contractor must be made a full partner in the planning of the facilities and, moreover, right in the initial stage. We must also create--once again in the initial stage of the financial planning period--simulation models of the planning and construction of large industrial complexes.

[Question] It would be nice to hear something about parallel planning and construction. We can probably say that this unification, this parallelism is not absolute. Precisely what order of planning and construction is to be followed in relation to the excavator plant?

Vostroknutov: It stands to reason that builders cannot be working on the basis of a drawing that is still in the hands of the planners. Such miracles simply do not occur. The order we have adopted is as follows: The planning and construction operations pertaining to the excavator plant have been subdivided into several phases: foundations; building frame; building walls and ceilings; built-in spaces; equipment foundations. Planning is about a quarter ahead of construction. This time difference is fully sufficient.

[Question] One last question. This one has to do with practical details rather than general premises. It is not entirely clear to me why the Moscow Promstroyproyekt, which is the principal organization responsible for construction planning of the Krasnoyarsk plant, was not asked to participate in development of the plant's master plan.

Zubkov: We feel this fact to be unfortunate. The uncertainty which generally exists in relation to development of master plans for industrial complexes played a role here. The process engineers felt that the master plan was their affair, while construction planners felt it to be their prerogative. But I should note that no contradictions arose in this concrete case. Formally speaking, the Moscow Promstroyproyekt was not invited to participate in development of the plant's master plan, but it did have a certain influence on its development. Process engineers of the Uralgiprot'yazhmash did respond sensitively to Promstroyproyekt's remarks and proposals.

Borovoy: Thus this is yet another example of coordinated effort. Although development of the master plan was not in principle within the specialty of the process engineering organization, the proficiency it displayed and its attentive consideration of suggestions made by the Promstroyproyekt led to a good result. In the end, the master plan approved by the Ministry of Heavy and Transport Machine Building for the plant was progressive from the standpoint of the fundamental space-planning principles followed in the new construction projects.

Summarizing what has been said in our discussion, I would like to lay special emphasis on the fact that the new conception we discussed in the beginning is manifesting its fruitfulness, and it is beginning to see the light of day at the Krasnoyarsk construction site mainly owing to good mutual understanding and coordination among all participants of the plant's planning and construction. This was especially evident in complex situations where there was sufficient "fuel" for professional disputes and even conflicts. Mutual understanding invariably won out.

We have started out very well. That which we have conceived corresponds to the important principles contained within the CPSU Central Committee and USSR Council of Ministers decree "On Improving the Planning and Intensifying the Influence of the Economic Mechanism on Raising Production Effectiveness and Work Quality." Let me take this occasion to express my hope and my confidence that this construction project, to include the enterprise's actual commissioning for operation, will serve in its entirety as a model and an example from which all of our planners and builders could learn a great deal.

11004

CSO: 1621

CONSTRUCTION, CONSTRUCTION MACHINERY, AND BUILDING MATERIALS

ENGINEER SUGGESTS WAYS TO CURB BUILDING HEAT LOSS

Moscow STROITEL'NAYA GAZETA in Russian 28 Oct 79 p 3

[Article by Candidate of Technical Sciences A. Ivyanskiy, Laboratory Director, Central Scientific Research and Experimental Planning Institute of Engineering Equipment: "The Heat is Slipping Out Into the Cold"]

[Text] Forty percent of the fuel extracted in the country is used to heat buildings. Estimates show that were we to improve building design and the structure of modern heating and ventilating systems, we could reduce fuel consumption by a third.

The fact is that all existing heating systems are designed to heat a certain mass of air. If too much air circulates, apartments become cold, and wherever circulation is clearly low, the air gets overheated. Thus significant masses of cold air get into spaces in lower stories located near entranceways. This is why we can attain a temperature of 18-20°C (as required by the norms) in such places only at the price of significant overconsumption of fuel: We are forced to heat air coming in from the street. This means that it becomes intolerably hot in the upper stories, and tenants must open their windows.

The conclusion begs itself: In order that all rooms in a residential building would be identically warm, we must improve apartment insulation and block the routes by which cold air masses penetrate into them. A new SNiP [Construction Norms and Specifications], "Heat Engineering in Construction," which went into effect on 1 July of this year established, for the first time in domestic practice, norms for penetration of air through entranceways and interstory ceiling-floor slabs. This document is doubtlessly playing a positive role in fuel economy. However, I think that some of its provisions require elaboration.

As an example the requirements set for the airtightness of apartment doors are stiffer than those imposed on windows which, as we know, are shut, completely or partially (except for an air vent or a narrow slit), for the entire heating season. It is not a simple thing to attain such excessive airtightness around entrance doors; moreover, is it really necessary? On the other hand it seems to me that the seepage of air through interstory ceiling-floors must be reduced.

What the norm set by the new SNiP means is that an impressive quantity of air will seep into the apartments on the upper stories from the lower stories. Moreover this would not be fresh air: It would be contaminated by odors and microorganisms. This is naturally not a desirable phenomenon. And this is why we must block passage of air through ceiling-floors: Joints between construction structures must be plugged more carefully, and openings through which utility lines pass should be sealed off better.

A requirement to seal off windows and balcony doors had been foreseen prior to introduction of the new SNiP. Manufacturers of carpentry articles were prohibited from manufacturing them out of raw lumber and without polyurethane foam sealing material. In practice, however, this requirement has often been violated. For the same reason, on-site tests have shown, that airtightness of windows and balcony doors has been two to three times lower than permissible. And once air, I repeat, enters the apartments in quantities greater than required, it would have to be heated.

The new SNiP set a higher norm for the airtightness of windows and balcony doors, which now require implementation of a large number of production and technical measures at woodworking enterprises. The planners will be affected as well. Today, they decide on single, double, or triple glazing using a formula derived from the results of tests on five-story buildings in Moscow. But these buildings are being erected in our country from the Baltic to Kamchatka and from Murmansk to Kushka, where not only are the natural and climatic conditions different, but also the heights of the buildings vary. Thus we find that this formula cannot be applied to all cases.

Compliance with all requirements set by the SNiP "Heat Engineering For Construction" will now be checked when buildings are accepted for operation.

Among technical innovations aimed at economizing on heat, I have recommended first of all, introduction of controllable air intakes installed in the upper parts of window frames. Air entering through them beneath the ceiling is heated, and then it descends to the floor at a temperature close to that of room air. These devices could be used in conjunction with the exhaust ventilation system developed by the MNIITEP [not further identified], which is outfitted with controllable exhaust grates.

I would also recommend installation of automatic central heating systems that adjust the heat inflow on different sides of the building depending on meteorological conditions (wind, sun, precipitation, ambient air temperature).

Naturally none of the suggestions I have made here preclude the need for developing new, more economical concepts for air conditioning systems.

The central committee of our trade union and the editorial board of the STROITEL'NAYA GAZETA are sponsoring an all-union raid on construction sites and enterprises from 12 to 16 November as part of the

all-union public inspection of the effectiveness of the use of raw materials, materials, and fuel and power resources.

The goal of the raid is to attain proper order in the storage and thrifty use of construction materials--cement, metal, lumber, and glass.

We await, from the inspection commissions, raiding teams, and all of our newspaper's readers, reports on the raid's progress, on the shortcomings revealed, and on steps taken to improve storage and thrifty use of construction materials.

We request that "Raid" be written on all letters and photographs submitted.

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CONSTRUCTION, CONSTRUCTION MACHINERY, AND BUILDING MATERIALS

TWO-YEAR PLANNING SYSTEM PROBLEMS RESOLVED

Moscow SEL'SKAYA ZHIZN' in Russian 30 Aug 79 p 2

[Article: "Discussions of the Continuous Planning System"]

[Text] There have been a number of responses to the article "Discussions of the Continuous Planning System," published 27 March. RSFSR Gosplan Deputy Chairman A. A. Kamenov believes that the article correctly raised questions associated with 2-year planning of capital investments into rural construction and into planning and exploratory operations.

The RSFSR state plan of socioeconomic development for 1976-1980 spells out the volume of capital investments to be made by the RSFSR Ministry of Agriculture as a whole in the five-year plan, broken down into individual years. The ministry has worked out the five-year plan's indicators, broken down into individual years, for the volume of output capacities to be placed into operation, the capital investments to be made, and the construction and installation operations to be completed, and it has brought them to the awareness of the oblasts, krays, and autonomous republics. This permits local agencies to organize construction according to the 2-year continuous planning principle: The first year is the working year, and the plan is not subject to alterations; the second is the preparatory, or starting year, during which insignificant corrections and alterations are permitted in the plan.

A new working plan consists of facilities under construction carried over to the next year, and the required quantity of new construction projects. But because there have been considerable delays in the commissioning of various facilities, local planning agencies are forced to make significant alterations in the plans for the current and subsequent periods, which is significantly reducing the effectiveness of 2-year planning. One of the important problems of introducing the continuous planning system is that of reinforcing the client services. Proposals for creating a single client service in agricultural construction have been prepared.

Experimental introduction of the Orel continuous planning system into rural construction was started in 1978 on the initiative of the RSFSR Gosstroy

not only in Orlovskaya but also in Kaluzhskaya, Tul'skaya, and Sverdlovskaya oblasts. The RSFSR Gosplan has made the necessary allocations for the experiment. The results of the 2-year experiment will be analyzed, and recommendations on introducing this method into rural construction will be issued.

In the opinion of the RSFSR Ministry of Rural Construction, Deputy Minister L. Ya. Ivanov writes, extensive introduction of the Orel continuous planning system into rural construction will depend mainly on the attitude taken toward this step by the oblast and kray executive committees, the councils of ministers of the autonomous republics, and the client (the RSFSR Ministry of Agriculture). The ministry is in full agreement that introduction of the continuous planning and flowline construction method into rural construction will be successful, given clear coordination is achieved in the actions of all services and subdivisions involved in construction.

The article "Discussions of the Continuous Planning System" was examined by the Orlovskaya Oblast CPSU Committee. Oblast committee secretary M. A. Mironov informed us of the measures taken to supply materials, financing, equipment, and planning and estimate documents to the construction projects, and to develop the construction industry base and the construction materials base, bringing them as close as possible to the construction sites. Together with other measures, this one will promote elimination of the shortcomings mentioned in the article "Discussions of the Continuous Planning System."

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CONSTRUCTION, CONSTRUCTION MACHINERY, AND BUILDING MATERIALS

MOSCOW COMMITTEE ATTACKS INADEQUACIES OF RURAL CONSTRUCTION

Moscow MOSKOVSKAYA PRAVDA in Russian 30 Aug 79 p 1

[Article: "Nonchernozem Facilities Go Into Operation"]

[Text] The Bureau of the Moscow City CPSU Committee examined the question "On Unsatisfactory Fulfillment, by Construction Organizations of the Moscow City Executive Committee, of the CPSU Central Committee and USSR Council of Ministers Decree 'On Measures For Developing Agriculture in the Nonchernozem Zone of the RSFSR'."

It is noted in the adopted decree that construction organizations and construction materials industry enterprises of the Moscow City Executive Committee did a certain amount in 3 years and 7 months of the 10th Five-Year Plan to strengthen the material-technical base of agriculture in the RSFSR's Nonchernozem Zone in compliance with the 20 March 1974 CPSU Central Committee and USSR Council of Ministers decree "On Measures for Development of Agriculture in the RSFSR Nonchernozem Zone."

The volume of construction and installation completed during this period was about 95 million rubles. Projects built and placed into operation included residential buildings with a total area of 155,700 square meters, a live-stock complex with a capacity of 2,700 head at Moskovskiy Sovkhoz, an irrigation system covering an area of 170 hectares at Zabor'yevskiy Sovkhoz in Ryazanskaya Oblast, a pilot project at the Mar'inka Poultry Factory with a capacity of 80,000 laying hens, and a number of administrative, cultural, personal services, and municipal facilities.

Enterprises of the Glavmospromstroyaterialy [Main Administration of the Building Materials and Structural Parts Industry of the Moscow City Executive Committee] and the Glavmosmontazhspetsstroy [not further identified] delivered various structures, materials, and equipment worth 54.8 million rubles to agricultural construction sites.

At the same time the Bureau of the Moscow City CPSU Committee noted that erection of agricultural facilities by construction organizations of the Moscow

City Executive Committee is proceeding unsatisfactorily. The plans for construction and installation in 1976-1978 and in 7 months of the present year have not been met as a whole.

The Glavmosstroy [Main Administration for Housing and Civil Engineering Construction in Moscow] (chief, Comrade Kokhanenko) fails to meet the plan for agricultural construction every year. Construction projects that were to be completed in 1979 are experiencing significant delays.

The Bureau of the Moscow City CPSU Committee subjected executives of Mosstroy trusts No 1, No 7, and No 14 to criticism for failing to complete their assignments. The Stroitel' Trust is making extremely unsatisfactory progress in construction of agricultural facilities.

Mosstroy trusts No 3 and No 6 (acting director, Comrade Vol'tsenger, director, Comrade Naumenko) are falling behind the plan in their construction of a number of residential, cultural, and personal services facilities at the Mar'inka Poultry Factory, at Moskovskiy Sovkhoz, and in the village of Nemchinovka.

The Glavmospromstroy [not further identified] (chief, Comrade Kaminskiy) failed to complete its 1976-1978 agricultural facility construction plan. The plan for placing a number of highly important facilities into operation was not met in 1978. Nor have Glavmospromstroy organizations been able to meet the construction and installation plans for 7 months of the current year. There are significant delays in construction of pilot facilities.

The Bureau of the CPSU Moscow City Committee levied serious criticism against executives of Mosstroy Trust No 4 (director, Comrade Sapozhnikov), State Construction and Installation Association No 1 (chief, Comrade Kuznetsov), and Mosstroy Trust No 28 (director, Comrade Losev) for falling behind.

The Glavmosinzhstroy [not further identified] (chief, Comrade Molchanov) was unable to complete this year's 7-month assignment for construction of utility networks and roads at kolkhozes and sovkhozes of the RSFSR Non-chernozem Zone.

The Glavmospromstroymaterialy (chief, Comrade Osipov) and the Glavmosmontazhspetsstroy (chief, Comrade Kovalev) are tolerating incomplete deliveries of reinforced concrete structures and materials for electrical, air conditioning, and sanitary engineering facilities at a number of construction sites. The installation trusts of the Glavmosmontazhspetsstroy have assigned little manpower to the construction of some facilities, and they are failing the plan for subcontracted jobs.

The principal causes of the failure of agricultural facility construction plans include insufficient attention to them on the part of executives of

main administrations of the Moscow City Executive Committee (chiefs, comrades Kokhanenko, Kaminskiy, and Molchanov), unavailability of the necessary materials and manpower at the construction sites, and poor organization of the work.

Progress in the construction of a number of facilities, a resolution of the Bureau of the Moscow City CPSU Committee emphasizes, is also being delayed as a result of shortcomings in the work of the clients--the agricultural ministries of the USSR and the RSFSR, and organizations subordinated to them, which are late in providing planning and estimate documents to the rural construction sites, and are tardy in resolving the problems of allocating the land and transferring it to the builders for construction.

Organizations of the USSR State Committee for Production-Technical Support to Agriculture are failing to meet the deadlines for deliveries of equipment and materials.

The party organizations of the main administrations, trusts, and services of the clients have weakened their exactingness toward business managers for unconditional fulfillment of planned assignments pertaining to agricultural facilities, and they are not showing concern for organizing socialist competition or for satisfying the personal needs of builders in rural areas.

The republic CPSU committee is inadequately monitoring the progress on planned assignments for building agricultural facilities, and leniency is being shown toward executives of organizations failing to comply with the orders of directive agencies concerning development of agriculture in the RSFSR Nonchernozem Zone.

The Bureau of the Moscow City CPSU Committee strictly punished the chiefs of Glavmosstroy, Glavmospromstroy, Glavmosinzhstroy, and Glavmosmontazhspetsstroy, comrades Kokhanenko, Kaminskiy, Molchanov, and Kovalev for failing to take the necessary steps to complete the state plans for building agricultural facilities in the Nonchernozem Zone of the RSFSR, and it ordered them to develop and implement concrete organizational and technical measures insuring fundamental improvement of work at rural construction sites and correction of deficiencies in completion of the 1979 plan and the 10th Five-Year Plan as a whole.

The attention of RSFSR Deputy Minister of Agriculture Comrade Poteryakhin and USSR State Committee for Production-Technical Support to Agriculture Deputy Chairman Comrade Prokhorovich was turned to serious shortcomings in the work of subordinated organizations that were late in clearing areas for construction, provided the builders with incomplete planning and technical documents, and caused delays in equipment deliveries.

Comrades Osipov and Kovalev, the chiefs of Glavmospromstroy and Glavmosmontazhspetsstroy declared publicly that enterprises of these main administrations will insure delivery of structures, articles, and materials to rural construction sites on time and in the volumes agreed upon with the construction organizations.

Comrades Kaukalov and Sapozhnikov, directors of Glavmosstroy's Stroitel' Trust and Glavmospromstroy's Mosstroy Trust No 4, were reprimanded for systematically not completing the plans and, on several occasions, failing to place agricultural facilities into operation on time.

Severe warnings were issued for failure to complete the agricultural facility construction plans to the directors of Mosstroy trusts No 6, 7, and 14, and the acting directors of Mosstroy trusts No 1 and 3 of Glavmosstroy (comrades Naumenko, Sirinka, Kremnev, Shpigel', and Vol'tsenger, to the chief of the State Construction and Installation Association No 1 (Comrade Kuznetsov), and the director of Mosstroy Trust No 28 of Glavmospromstroy (Comrade Losev).

The republic CPSU committee and the construction site party organizations were asked to intensify their surveillance over construction of agricultural facilities, to improve organizational and political work aimed at mobilizing the labor collective for unconditional fulfillment of planned assignments, and to strictly punish the executives of construction organizations failing to meet the construction and installation plans and causing late commissioning of facilities in the RSFSR Nonchernozem Zone.

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CONSTRUCTION, CONSTRUCTION MACHINERY, AND BUILDING MATERIALS

PREFAB WOODEN HOUSES FOR SALE IN RURAL AREAS

Moscow TRUD in Russian 21 Nov 79 p 1

[Article: "A House for the Countryside"]

[Text] The CPSU Central Committee and USSR Council of Ministers decree "On Further Development of Plant Production of Wooden Panel Houses and Outfits of Wooden House Parts Made From Local Materials for Rural Housing Construction" was published this week. What steps are being taken to implement this decree?

USSR Deputy Minister of Timber and Wood Processing Industry Nikolay Aleksandrovich Serov gave the answer to this question to our correspondent.

Enterprises of our ministry began producing wooden panel houses for rural areas relatively recently--5 or 6 years ago. A preference for shorter structures took on new force during that time.

A single-story house or a split-level houses offers tremendous advantages to a peasant over multistory residential buildings. He is able to maintain a private plot, a garden, a cellar, a summer kitchen, and the numerous other yard additions and separately standing structures needed so greatly by a household. The family is able to keep cattle, goats, piglets, birds, and even a bee garden. But the vegetable garden is what is most important.

All of these advantages are accounted for, as an example, in the experimental village of Sel'skaya in the Moscow suburbs. Here, the houses and the entire settlement give off the impression of sophisticated architectural expressiveness in the technical concepts employed, and personal conveniences.

Parts for such construction projects are being produced by the Novovyatsk Wood Panel Combine, the Perm' House Building Combine, and the Khor, Yushala, Talitsa, and Uva wood processing combines. The principal materials employed are wood fiber slabs and timber.

Three years ago our ministry's enterprises manufactured houses at a rate of 400,000 square meters per year. Today their production has risen to a million and a half square meters. In the next decade--that is, by 1990, we are to increase this output capacity by more than seven times, up to 11 million square meters per year. Our ministry will build 127 new plants and shops in order to complete this task. Their work will be coordinated by the newly organized Main Administration for Production of Wooden Houses.

Many ministries and departments are called upon to help in the implementation of the party's and government's decree. As an example the ministries of construction, road, and municipal machine building, chemical and petroleum machine building, chemical industry, ferrous metallurgy, aviation industry, gas industry, and others have been given assignments to develop and manufacture various production equipment to be used in the manufacture of articles required in the erection and furnishing of rural houses, and to supply heating units and sanitary engineering devices to the house building enterprises.

Our ministry has been designated as the principal organization for this effort; it has been given the responsibility of developing the requirements on the production equipment, on the trimming and structural materials, and on auxiliary articles, of planning house production enterprises, and of planning the houses themselves.

Several days ago the Gosgrazhdanstroy [not further identified] held a meeting in which we discussed these problems. In particular we examined the plans of the rural houses.

We have more than 70 plans as of this moment. They will be used as the basis of our work until 1985. But work is already proceeding on the basis of our recommendations on new plans for houses with improved layouts--more spacious and comfortable. They are being developed by the State Institute for the Planning of Wood Processing Industry Enterprises and by institutes of the Gosgrazhdanstroy. Living space in the new plans has been increased by 100 meters and more. Yard structures for maintaining farm animals and birds and for storing hay, and storerooms are located near the house. There is a plot of land immediately beyond the yard. Thus the old traditional look of the peasant plot is maintained. The specific features of rural living are best satisfied by a structure equipped with an orchard and a garden.

The prefabricated plant-manufactured wooden houses are light, beautiful, and economical. Their prices vary depending on the amount of useful space available. A square meter of living space costs about 150-160 rubles. If the house plan foresees built-in furniture, the price is higher. In a word, the price of the structure varies from 7,000 to 16,000 rubles. The existing system of long-term loans for builders and of advantages to the households themselves makes it possible for practically every rural laborer to acquire such a home without any special detriment to the family budget.

In conclusion I would like to say that development of plant production of wooden panel houses is a hard and long process, intended to go on for more than just a single year. But the workers of timber and wood processing industry will apply all of their effort to see that this highly important task--rebuilding rural population centers--will be completed successfully.

And so, many enterprises have already begun manufacturing wooden panel houses. The finished products are being delivered to the countryside. And where can a builder acquire such a home, and from whom? We referred this question to N. I. Supotnitskiy, first deputy chairman of the Central Union of Consumers' Societies.

Our system has long contained specialized stores selling lumber. They are present in every oblast, and they possess large storage areas where they can store dozens of complete wooden house packages. The existing network of such stores can handle any number of houses for sale.

What will be the selling practice? At first, we will obviously continue to follow the waiting list principle, as is the case for example with the sale of passenger cars. But when more houses become available, this principle will give way to free sale.

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RURAL CONSTRUCTION COMBINES SHOW PROMISE

Moscow STROITEL'NAYA GAZETA in Russian 23 Nov 79 p 3

[Article by O. Pakhomova and I. Svirin: "From Analysis to Action"]

[Text] As was reported earlier in STROITEL'NAYA GAZETA, a conference-seminar of specialists from construction, scientific research, and planning organizations was held in Kalinin with the purpose of discussing ways to improve the activities of rural construction and house building combines, and encouraging their further development.

Participants of the conference included CPSU Central Committee Member, First Secretary of the Kalininskaya Oblast CPSU Committee P. Leonov, CPSU Central Committee Construction Department Sector Director A. Kosogov, USSR Deputy Minister of Rural Construction D. Breslavtsev, RSFSR Minister of Rural Construction N. Mal'tsev, and Kalininskaya Oblast Executive Committee Deputy Chairman G. Samsonov.

RSFSR Deputy Minister of Rural Construction G. Vedev gave a report on the work experience of the rural construction combines and on their subsequent development.

In our opinion the conference-seminar held in Kalinin was quite important because this was the first time ways to raise the effectiveness of the work of rural construction combines--a new and most progressive form of organization of construction in rural areas, upon the development of which the rate and scale of integrated transformation of the countryside depend in many ways--were discussed at such a representative forum.

The conference participants noted that many modern highly mechanized livestock farms and poultry factories, residential buildings, and cultural and personal facilities built by rural construction combines are being placed

into operation faster and are costing the state less. By concentrating the work of manufacturing the parts and structures and installing the ready-made buildings, we can resolve organizational issues more efficiently than for example, in general construction trusts, and we create the conditions for flowline work and for introduction of the integral team contract. And as a result we promote growth of labor productivity.

Thus in comparison with the corresponding period of last year, in 10 months of this year the rural construction combines of the RSFSR Ministry of Rural Construction increased the volume of contracted work by 30 percent, and the volume of residential space and agricultural production buildings increased by almost 55 and 52 percent respectively.

The Yaroslavl' SSK [Rural Construction Combine] of the Primorkraysel'stroy Administration is among the leading organizations. This combine systematically completes its planned assignments. The SSK has already attained its planned output capacity this year, less than 3 years after it first became operational. It is doing a great deal to raise the degree of plant prefabrication of articles and structures. In particular, rural builders of Primorskiy Kray are successfully employing progressive piles, reinforced concrete half-frames, asbestos-cement panels and roofing, prefabricated structures for feed shops and reservoirs, and story- and room-size outer wall panels for residential buildings.

One of the main achievements of the combine collective is that of surrendering most of its facilities to the client absolutely finished. This is promoted to a considerable extent by the organizational structure adopted by the SSK. The foundation work of the Yaroslavl' combine is being done by specialized teams present in all mobile mechanized columns, and exterior utility lines are being installed by subcontracting organizations. Work is done in accordance with a construction and installation flowline system, in which specialized teams and units assemble the building frames and do all of the general construction jobs. The structures are trimmed by trimming sections and a minor mechanization section created in the SSK.

All participants of the conference-seminar were highly interested in learning about the work of the Kalinin Rural Construction Combine--a unique enterprise which has production operations producing outfits of prefabricated reinforced concrete and keramzit concrete structures for Series 25 residential and public buildings and six types of Series 209 plywood farmhouses, all under the same roof.

The combine collective has assimilated production and construction of 12 types of residential buildings, several schools, nurseries, clubs, and production buildings. Speaking frankly, this is a considerable achievement. Preparations are now underway for a transition to production of farmhouses.

The first one- and two-apartment houses have already been assembled on the combine's exhibition ground. The original design of the facades, the

well conceived layout of the apartment rooms, which account for the unique features of rural life, the diversity of the construction materials employed, and the completeness of the utilities with which the buildings are provided all elicit the approval of specialists visiting Kalinin.

The conference demonstrated that there are many rural construction combines in the country which have had experience deserving of attention and publicity. As an example three suburban Moscow combines-- the Podol'sk, Klin, and Yegor'yevsk combines--are doing a great deal of purposeful work to standardize agricultural production buildings. The Novosibirsk and Slutsk SSK's have been credited with many achievements.

Nevertheless, it was noted at the conference, most of the combines are still not completing the main task for which they were created: They are not showing responsibility for the commissioning of finished facilities, and they are utilizing their planned output capacity poorly. The proportion of construction and installation performed through the efforts of SSK's is only 5.3 percent in relation to the total volume of the RSFSR Ministry of Rural Construction. The plan for placing large-panel residential buildings into operation this year calls for a volume of only 566,000 square meters due to a lack of coordination between builders and clients; consider this in light of the fact that the output capacity of the rural construction combines totals 884,000 square meters. At the same time despite the fact that the SSK's are not working at full capacity, more than 257,000 square meters of living space are presently being erected in some oblasts according to plans not calling for industrial installation of pre-fabricated homes.

It has been estimated that were we to load the combines to their full capacity, we could increase the volume of construction and installation by about 30 million rubles and hasten completion of the important socioeconomic task of providing comfortable living quarters to rural laborers and creating good conditions for their work and leisure.

The conference noted the principal ways for raising the economic effectiveness of SSK's. First of all we must finish drawing up the 1980 work plans for the combines as quickly as possible, making sure that the existing production capacities are operated at their full capacity. As an example the RSFSR Ministry of Rural Construction approved the draft annual programs of the Mary and Orel SSK's. But such a favorable situation is present far from everywhere. In particular, organizations of the Bryansk combine, the Engel's combine in Saratovskaya Oblast, and the Kurovskoye SSK in Kaluzhskaya Oblast submitted draft plans for examination which stated an unsatisfactory work load.

Today the country's best SSK's are employing a system of integrated engineering supply to construction sites in accordance with flowsheets and weekly and daily schedules. As was demonstrated at the conference, because materials and equipment are not available in the full amounts required, many combines are unable to take advantage of the positive experience.

In order to help the SSK's the RSFSR Ministry of Rural Construction suggests that beginning with next year we organize centralized issue of materials, equipment, machinery, and mechanisms to the operating SSK's. We believe that this good initiative should be adopted by other departments possessing rural construction combines as well.

All speakers at the conference-seminar noted that the SSK must do all of the work at a construction site through its own resources. For this purpose trimming, sanitary engineering, and electrician sections, motor columns, and mechanization and special subdivisions must be subordinated to each combine before the end of the year. This will make it possible to set up flowline production with a closed production cycle and submit finished projects to the client completely ready for operation.

The working conditions in the countryside are unique in that facilities are far apart from one another and from the production base, and the lack of roads requires constant growth in the degree of prefabrication of the articles produced. As a consequence help of greater effectiveness must be provided to SSK's by specialists of design offices specializing in reinforced concrete, by the TSNIIEPSel'stroy [not further identified], and by other institutes in introducing their developments concerned with enlarging the prefabricated structures and raising the degree of their prefabrication. We must hasten development of standard plans for the production bases of SSK's of different output capacities, to include all necessary production operations, modern trimming conveyer lines and posts being among them. The RSFSR Ministry of Rural Construction, which presently possesses the largest quantity of rural construction combines, has decided to create production process supply bases to service each SSK individually.

We believe that the work of the SSK's can be improved to a considerable extent by organizing a socialist competition among operating enterprises next year. Rapid assimilation of planned output capacities and commissioning of finished facilities should become the principal indicators of the work of the competing collectives.

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CONSTRUCTION, CONSTRUCTION MACHINERY, AND BUILDING MATERIALS

PROBLEMS ENCOUNTERED IN CONSTRUCTION OF LIVESTOCK ENCLOSURES

Moscow STROITEL'NAYA GAZETA in Russian 2 Nov 79 p 3

[Letter by I. Panyukov and an article in response by V. Kapel'kin: "An Obsolete Attachment to Pipes"]

[Text] The existing standard plans for pens and milking stalls at livestock complexes call for large amounts of scarce steel piping. Taking shelter behind the contradictory directives of their superiors, clients refuse to deliver this equipment to facilities under construction. To keep from failing the opening deadlines of such complexes, building organizations are forced to make the pens and milking stalls through their own efforts, for which purpose they acquire piping and rolled metal locally by hook or by crook. Planning organizations are taking a long time in their search for replacement materials for pens and milking stalls.

These problems were raised in the article "Empty Pipes" published in our newspaper on 21 January of this year. What has been done to solve this urgent problem?

"Dear Editor!

"I remember breathing a sigh of relief in January when I read an explanation published in STROITEL'NAYA GAZETA and written by the USSR Gosstroy's department of construction material consumption norms, in which it was stated with all certainty that irrespective of whether pens and milking stalls are treated as items in the construction and installation category or in the equipment category of the estimates, the client is obligated to deliver them. At last, I thought, we the builders would be able to dispense with the practice of "robbing Peter to pay Paul"--borrowing piping from housing and municipal construction projects and from facilities of our own base undergoing reconstruction.

"But my celebrations were premature. We went to our clients at the oblast agricultural administration, and they just laughed. They had already

managed to find a loop hole--an excerpt from the minutes of a conference of representatives of the RSFSR Ministry of Agriculture and contracting ministries sponsored by RSFSR Gosplan Assistant Chairman I. Fruzdev, which stated that it was the responsibility of the contractor to deliver the piping required for pens and stalls. We were not to expect any help from the client. And so we left with nothing to show for our trip.

"Things went back to the way they used to be. The trust administration is placing pressure on our Production Process Supply Administration, and mechanized columns subordinated to us are pestering us with their demands: Two hundred forty tons of steel piping are needed for 11 livestock facilities under construction this year, to include eight pilot complexes. Thus we were forced to seek help from the Glavtsentrosel'stroy [not further identified]. Piping intended for sanitation and other facilities was turned over to us. We managed to scrape together a hundred tons after some difficulty. And where we get the rest, we do not know."

I. Panyukov,
Chief, Production Process Supply
Administration, Kalugasel'stroy Trust

The editorial board sent I. Panyukov's letter to its correspondent in charge of the RSFSR Nonchernozem Zone, V. Kapel'kin. Here is what he reported.

It is true that RSFSR Gosplan Assistant Chairman I. Gruzdev did record the minutes of the meeting of client and contractor representatives. On the insistence of RSFSR Deputy Minister of Agriculture O. Poteryakhin it was written down in the minutes that pens and stalls were structural items, and not equipment, and therefore the contractor was the party responsible for finding the piping for these items. This was done in opposition to the clarification published in STROITEL'NAYA GAZETA on 14 January of this year by the USSR Gosstroy's department of construction material consumption norms. Nor were the objections of the representatives of the RSFSR Ministry of Rural Construction taken into account.

The RSFSR Ministry of Agriculture took the pains to see that excerpts from the minutes (which bore the signatures of the representatives of the rural construction ministry, even though they had not really signed them) were duplicated and sent to all clients in the republic. Naturally the latter have accepted the excerpts as ammunition, and now they are laughing. The contractor, meanwhile, can do nothing but cry.

Why was such a decision made? After all, O. Poteryakhin knows that it was improper. According to the clarification given by the USSR Gosstroy's department of construction material consumption norms, enclosures to be used in the maintenance of animals at livestock complexes--pens and milking stalls--are equipment, provision of which to complexes under construction is the responsibility of client organizations.

But what is this unshakable attachment the rural clients and planners have for metal? Naturally, piping is an excellent construction material. But we must also live within our means. And yet one visits a livestock complex, and all one sees is metal. You are shown a pen containing a gentle calf, but the structure of the pen is such that it could probably withstand the onslaught of a mighty tiger.

The search for a replacement material for piping used to build pens and stalls is proceeding improbably slowly, even though the alarm concerning this problem has been ringing for a long time now. Back in June 1973 a request addressed to the USSR Ministry of Agriculture to ask its planning organizations to find pen and stall plans using less metal, and mainly to replace steel piping by other materials, was recorded in the minutes of a meeting of the clients and contractors of rural facilities, held at the USSR Gosstroy's department of construction material consumption norms.

Little would have been done by the USSR Ministry of Agriculture's principal institute, the Gipronisel'khoz [All-Union Planning and Scientific Research Institute for the Planning of Standard and Experimental Agricultural Production Complexes and Grain Storage and Processing Enterprises], had the builders not displayed some initiative. It was on request of USSR Deputy Minister of Rural Construction D. Breslavtsev that specialists of the TSNIIEPSel'stroy [not further identified] began working on a new stall design. Three years later documents were published for reinforced concrete animal enclosures, coordinated with the coauthor and patron, Gipronisel'khoz. The Reinforced Concrete Articles Plant of Pokrovsel'stroy Trust in Vladimirskaya Oblast manufactured a set of reinforced concrete stalls as a special order.

It is now the third year that these carefully packaged structures are lying in the plant's finished products warehouse. Neither Gipronisel'khoz and TSNIIEPSel'stroy nor the Ministry of Agriculture and the Ministry of Rural Construction have shown any concern for installing them.

The TSNIIEPSel'stroy published a new catalog of reinforced concrete enclosures made with "reinforced reinforcement metal." And once again the coordination of the documents with Gipronisel'khoz drags on, and the search for an enterprise that could manufacture the new structures proceeds. Meanwhile, those that have already been manufactured are lying around unused.

The Mosgipronisel'stroy [not further identified] and the Main Administration for Construction in Moscow Oblast are searching for new variants of enclosures much more intensively. These organizations have united their efforts to create and test reinforced concrete pens, and now they are making preparations for their broad introduction. The chief engineer of Mosgipronisel'skoy, L. Sokolov, is firmly convinced that the future lies with reinforced concrete pens and stalls, which incidentally promise to have a life that is two to three times longer than stalls made from piping. And the future is quite near at hand. The Podol'sk Rural Construction Combine's plan for the future year calls for construction of livestock buildings containing pens made from reinforced concrete.

CONSTRUCTION, CONSTRUCTION MACHINERY, AND BUILDING MATERIALS

DEVELOPMNETS IN UZBEK CONSTRUCTION MANAGEMENT

Belorussian Construction Experiment in Uzbekistan

Moscow STROITEL'NAYA GAZETA in Russian 21 Oct 79 p 2

[Article by S. Omerov, minister of construction of Uzbek SSR: "Lessons for the Future"]

[Text] The Uzbek Ministry of Construction is in its second year of operation under the conditions of the comprehensive economic experiment referred to as the "Belorussian experiment." Already it is possible to analyze the ministry's performance, to draw conclusions for the future, and to decide what can be carried over from this to the next 5-year period and what must definitely be dispensed with. This task is considerably simplified by the decree of the CPSU Central Committee and USSR Council of Ministers entitled "On Improving Planning and Enhancing the Impact of the Economic System on Raising Production Efficiency and the Quality of Performance."

The decree assembles in one place an enormous amount of experience in planning, economic and managerial activity and takes over everything that is best and progressive in what economic science and advanced practice have developed, including a number of propositions which were verified during the Belorussian experiment. It is time to think about how to utilize what had been achieved more effectively.

The continuousness of the effect of plans, their continuity, and their consistency with the resources and capabilities of construction organizations are among the principal conditions of the Belorussian experiment. But planning authorities and our numerous clients do not always take into account the allowed construction time by any means, and they use every means, fair and foul, to get projects included in the program on the basis of their own need. At the same time they do not provide full financing and resources for projects carried over, and they do not meet the conditions for building up partial completion. These errors are committed by union ministries of light industry and the food industry, and by the republic ministries of higher and secondary specialized education, of education, of culture, of municipal utilities and services, and others.

Lack of the necessary amount of partial completion disrupts the proper pace in delivery of projects. More than 60 of the 100 production capacities planned for delivery this year are scheduled in the fourth quarter! The plan for marketed output of the construction industry was shaped accordingly: 3 percent of the volume of capacity to be delivered in the first quarter, 16 percent in the second quarter, 22 percent in the third quarter and 59 percent in the fourth quarter. Is it even conceivable--coping with such a strenuous assignment in just 3 months?! The answer is well known. We know already that as of 1 January 1980 the ministry's plan will include 90 construction projects on which completion dates have passed and a remainder whose estimated cost runs to 194 million rubles.

Clients and planning agencies should take most of the blame for this. Clients allow themselves the arbitrary in planning construction because they need not bear responsibility for delivery of projects and capacities on schedule. The marketed output of the construction industry, which is a compulsory indicator for the Uzbek Ministry of Construction, means absolutely nothing to them. And Gosplan does not insist that clients take part in the experiment on the same footing with our ministry.

Nevertheless, there have been constructive developments. The plan for marketed output of the construction industry was fulfilled at a level of 118 percent for the first 8 months. The program for delivery of capacity and projects in the first 6 months was fulfilled in its entirety. Moreover, builders of both production projects and also residential and consumer-service facilities shared in the success. The volume of unfinished performance of construction and installation work was reduced 6.5 percent more than the assignment. (But I must say that the shortcomings noted above do not afford the possibility of bringing the level of "construction in process" down to the figure required by the ministry's participation in the experiment.)

I should stress that these achievements, though modest, are directly related to reorganization resulting from participation in the experiment. Internal potential had to be found for raising the efficiency and quality of performance, and faults of our own which we previously overlooked somehow simply had to be done away with. We put our reliance on subcontracting by work teams; the objective conditions now exist for its wider application. This year we propose to do at least half of all construction and installation work by the method of team cost accounting. (Last year it was 37 percent.) We are introducing the start-to-finish contract in the Fergana and Samarkand housing construction combines.

The experiment made it necessary to raise the technical level of construction. The level of prefabrication came close to 80 percent this year. Economical materials are being introduced more widely: high-grade cement, stekloprofilit, bent shapes of rolled metal products, and so on.

Quite a lot has been done to improve the organization and management of production. For example, quarterly plans are drafted and adopted for comprehensive preparation of production. Operational planning at the local level has improved. Computerized information systems have been introduced for monitoring progress in construction of projects near completion.

All of this taken together, as well as certain principles of the experiment pertaining above all to the ministry itself (but not all participants in construction) have resulted in constructive developments. To put it simply, we are still not utilizing fully enough the potential which is lying on the surface, so to speak, which we could take up ourselves without active assistance on the part of planning agencies and clients. This is good even now, but after all we must strive for something better, we must not limit ourselves to present successes.

Of course, it is extremely important to fulfill the plans of the 5-year period, and we are striving to do this with all our energies. But we cannot forget about the future either; we must be thinking even today about the kind of methodological equipment and practical know-how we will take into the 11th Five-Year Plan, when we will immediately undertake to fulfill assignments outlined by the decree of the CPSU Central Committee and USSR Council of Ministers without waddling or trying it on to see if it fits. One of the most important tasks in the present stage would seem to be thorough preparation for reorganization. The Belorussian experiment could create the conditions for this, provided, of course, that it is fully and thoughtfully carried out.

The terms of the experiment must first be fully carried out, the subsystem represented by the client must go into operation, and supply, component and project planning organizations must become involved. There can be no arbitrariness in planning. Financing must be effectively organized. In short, if we want to achieve the objective results of the experiment, then we have to observe all its terms in carrying it out. Otherwise it is quite possible that in 1981 not only contractors, but other sections of the construction industry will prove to be unprepared for the reorganization. Everything would have to begin from scratch. That is why we must decide even now what to carry over from this to the next 5-year period and to take pains so that our knowledge and know-how prove to be useful and adequate for performance of the tasks set by the decree of the CPSU Central Committee and USSR Council of Ministers.

CONSTRUCTION, CONSTRUCTION MACHINERY, AND BUILDING MATERIALS

CONSTRUCTION MINISTRY HOARDS MATERIALS

Moscow EKONOMICHESKAYA GAZETA in Russian No 35, 1979 p 9

[Article by V. Kulikov, Member, Governing Board, USSR All-Union Bank for the Financing of Capital Investments: "Turnover Overturned"]

[Text] "What you've hidden is lost, and what you've given away is yours." This saying was cited in a letter from one of the weekly's readers, Vladimir Timofeyevich Shkabrov, who explained it as follows: "To me, hidden means concealed from friends and perhaps from oneself, unused in practical activities."

V. Shkabrov is the chief of the production process supply administration of Construction Trust No 13 in Bobruysk. It is with a heavy heart that he communicates cases of a careless attitude toward materials and equipment. As a rule compressors service just a single pneumatic drill, rather than four. The rolled metal employed is thicker than necessary because of a scarcity of economic profiles.

During a public inspection of production reserves Construction Trust No 13 was able to economize more than 100 cubic meters of lumber and over 70 tons of cement, and, as the letter states, "they became persuaded that the reserves were being discovered in the course of their...utilization, and that they were inexhaustible." It is unfortunate that this assertion has not become the norm in many other construction organizations of the USSR Ministry of Industrial Construction.

In a number of places thrift is defined as stockpiling a surplus of material resources or things that no one needs. The warehouse of Mobile Mechanized Column (PMK) No 117 of Karelsel'sstroy Trust has been "aging" 46 cubic meters of paneling, 22 cubic meters of foundation blocks, 125 metal beds, and other treasures worth 15,000 rubles for 5 years. These articles will not become any better with time, and there is no telling when the builders will need them. The same goes for materials worth 17,400 rubles in PMK-85 of the same trust.

The executives of these subdivisions are following the "perhaps they may become useful" principle. Meanwhile businessmen in other organizations

are sweating over the problem of where to get such slabs, blocks, and the like, and they are placing new orders.

The Belotserkovpromzhilstroy Trust has accumulated roofing felt, sealing compound, and various brushes worth 80,000 rubles. It would be nice for it to share its wealth with other trusts of Kievpromstroy Combine, but this is not happening. To them, a surplus is no loss. That is an incorrect point of view!

The economy suffers tangible harm from the removal of material resources from economic turnover. Rather than utilizing existing articles, we are forced to produce new ones. Valuable materials frozen in stockpiles become obsolete. With time, moreover, it becomes increasingly more difficult to keep them from spoiling.

Materials were stockpiled without supervision by the Nikolayevzhilstroy Trust's Production Process Supply Administration (UPTK), and valuable materials for which different people were responsible were stored in the same area. Things would have remained unchanged, had not "lightning struck." To put it more accurately, a fire caused a loss of 50,000 rubles. Poor surveillance by the trust and materially responsible individuals led to a bitter lesson.

There is no place to store unneeded materials, and there is no reason for doing so. But the stockpiles continue to grow larger. Carpentry articles stored under the open sky by the Zhilstroy and Promstroy-2 construction administrations of Zakarpatstroy Trust had to endure a test of strength in the face of the elements. The rain and the snow did not improve their qualities. Metallic piping of various diameters is rusting in construction administrations No 1 and No 2 of Glavomskpromstroy's Spetsstroy Trust, and reinforced concrete articles are lying on the damp dirt without wooden supports.

How do material valuables worth tens and sometimes hundreds of thousands of rubles become frozen in warehouse stockpiles? There are several causes. Premature acquisition of material resources is one example.

The Prommontazh Association of the Belorussian SSR Ministry of Industrial Construction acquired an instantaneous above-plan reserve worth half a million rubles when a year prior to the beginning of installation operations it accepted 1,800 tons of metallic structures from a Molodichno plant. It would not be imprudent to begin preparing your sled in summer, but it would be clearly premature to prepare it during one winter for the next winter.

Incomplete deliveries, where parts of secondary importance arrive first and cannot be put to use right away, also have an unfavorable effect. The trusts of the Kievpromstroy Combine are accumulating thousands of cubic meters of prefabricated reinforced concrete articles being delivered to them arbitrarily by Kievzhelezobetonstroykomplektatsiya and by the Brovary Plant Building Combine.

In a number of cases the actual demand an organization has for materials is not taken into account. At the beginning of this year the UPTK of Tulspeetsstroy Trust had about 15,000 linear meters of ceramic piping in its possession. Nevertheless the UPTK ordered an equal amount more, and it received 9,300 meters. How much of the piping was laid? Only 5,300 linear meters--almost three times less than the UPTK had in the first place.

All of this attests to absence of reliable information on the reserves of materials held by organizations of the USSR Ministry of Industrial Construction. As a result difficulties arise at some construction sites, which experience a shortage of certain articles, while others must make additional unproductive outlays associated with frozen assets and with lengthy storage of unneeded and surplus materials.

Also of interest is the fact that the production reserves of the USSR Ministry of Industrial Construction as a whole increased by 21 percent in 1978, while the volume of work completed even managed to decrease somewhat. This trend is persisting into this year as well. Despite the requirement for placing material resources into economic turnover, the USSR Ministry of Industrial Construction is increasing its stockpiles.

Acquisition of materials for no good reason and presence of surpluses are placing construction organizations in a difficult financial position. In 3 years the amount still owed to suppliers for materials doubled for the USSR Ministry of Industrial Construction as a whole. The situation is especially unfavorable for Glavbashtroy (Ufa) and Glavzapaduralstroy (Perm').

The USSR Ministry of Industrial Construction is not demanding enough of its subordinated organizations, and it is doing little to see that they place their material resources into economic turnover. Thus while the USSR Ministry of Industrial Construction published an order spelling out the appropriate measures for the current year in January, the Azerbaijan Ministry of Industrial Construction did not react to it until March, and the Belorussian SSR Ministry of Industrial Construction and Glavzapaduralstroy responded even later.

It is time for the USSR Ministry of Industrial Construction to reexamine its attitude toward the important work of placing material valuables into the turnover.

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CONSTRUCTION, CONSTRUCTION MACHINERY, AND BUILDING MATERIALS

PILOT PROJECTS SUFFER CUTBACKS

Moscow STROITEL'NAYA GAZETA in Russian 25 Nov 79 p 2

[Article by V. Yazykov, Assistant Chief, Main Sector Administration, USSR Ministry of Construction: "How to Achieve Stability"]

[Text] The authors of the articles published on the newspaper's first page are right: The things that happen to pilot plants must come from story books: Sometimes all that is left of them are the horns and the hoofs. Let me try to unravel the mechanism of these remarkable transformations.

A pilot plant's "amputation" begins as a rule with the client. If his funds are short he consciously reduces the estimated cost of the pilot plant, and owing to this "white lie" the figures for the main production operation agree with the planned figures, less those of the auxiliary services. Another variant is possible as well: The client has enough funds for the entire pilot plant, but he must include facilities required by other production operations into the plan. Once again he performs an "amputation."

The inevitable consequence of this tactic is chronic swelling of the estimated cost. Workers of our main sector administration are unable to remember even a single construction project for which the cost had fallen within the estimate stated by the client and the planners. The amount overspent is measured in enormous figures. As an example an extra 6.4 million rubles had to be spent on the ammonium phosphate complex of the Almalyk Chemical Plant.

Such overshoots cost us dearly. They interrupt the work rhythm, cause confusion in material and technical supply, and make it necessary to conduct one crash campaign after another. There can be no discussion of construction starts in such a situation. And wherever there are no construction starts, no work can get done. The builders, who themselves condemn the practice of "amputating" the complexes, are themselves forced to assume this road, thus encouraging the client to persist in his accustomed ways. How otherwise would they be able to complete their assignment, in the present situation as an example?

Last year about 4 million rubles were invested into the construction of the ammoniumphosphate complex of the Chardzhou Superphosphate Plant, which has an estimated cost of 34 million rubles, and yet this complex is supposed to go into operation this year. This naturally led to requests for reducing the cost of the complex. Such requests are also transmitted to the client when things are going poorly with material and technical supply. They meet the builders half way, and then we later find out that it is impossible to place the enterprise into operation without the facilities scratched off the project list. This is what excessive "amputation" could lead to!

Could it be that the pilot plants are not needed at all? No! Without them, we could not even discuss competent organization of construction affairs. But it is important for contractors to receive the plans for the pilot plant at the necessary time. Technical competency is a necessity of the plan, and it must invariably carry a guarantee of its stability. How do we achieve this?

First of all the planners must make it law that the composition of the pilot plant is inviolable; they must assume a principled position in this matter in regard to both the builders and the client. When reviewing the plan, the corresponding services of the USSR Gosplan must not trim the cost of pilot plants to their own capital investment limits, and they must specify the time that output capacities are to go into operation on the basis of the real work volume to be done. Client ministries take the right approach when they prohibit the planning organizations from making changes in technical documents published earlier.

It is much more difficult to put a halt to willful deflation of estimated cost. Here the blame lies not with the planners but with superior organizations--the ministries and associations. It is precisely on their instructions that the cost of pilot plants is fitted to the volume of capital investments.

It is rather difficult for builders to get the planners to coordinate the composition of the facilities with their actual cost. The only thing they can do is refuse to give their approval to pilot plants, which is not always to their advantage. Any delay in the planning can make it necessary to wait longer to sign the contracts and get the financing. As a result the builders must punish themselves, paralyzing their own production activities. They are forced to compromise with the client and approve the pilot complex in the variant advantageous to the client.

The USSR Stroybank could provide more help than it is providing today. On receiving requests for financing, its territorial offices must make sure that the cost of pilot plants is on par with the capital investments. But the sanctions they impose must not be limited to a refusal to finance a project, since it is the builder that consequently suffers while the party really to blame remains unharmed. The client is the one who must be punished

first. It would be suitable to provide a loan to the builders for the time it takes to settle the financial questions, and the loan charge should be exacted not from the contractors but from the client.

Changes must also be made in the status itself of pilot plants. In particular we must make it a responsibility of the client to coordinate with the inspecting organizations on the pilot plant. The members of these organizations, who are also members of the state acceptance commissions, in many cases require performance of jobs and construction of entire facilities not included within the pilot plant. This raises heated arguments, which draw in the ministerial level to some extent. Preliminary coordination would of course not preclude debate, but at least the debate would occur in the beginning, rather than at the end of the construction, which would change things a great deal.

From my point of view we need to also make corrections in the composition of a pilot plant. Statement of just the assortment of facilities required is clearly not enough. The planners must also determine the work volume to be handled by different executors. This would help us to analyze the possibilities of different general contracting organizations better when writing up the plans. What am I referring to in particular? When it comes time to surrender output capacities and facilities for operation, we may find for example that gas supply lines, electric power transmission lines, and railroad sections, which are built on the basis of direct contracts between the client and the corresponding construction ministries--the USSR Ministry of Power and Electrification, the Ministry of Transport Construction, and so on, are not yet ready for operation. The composition of the pilot plant must necessarily contain these facilities, and the executives of the appropriate organizations must be made personally responsible for their construction.

I feel that by doing these things we can eliminate the faulty practice of "amputating" the pilot complexes, and that the plant operators would be able to assimilate the planned capacities of the enterprises more quickly.
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CONSTRUCTION, CONSTRUCTION MACHINERY, AND BUILDING MATERIALS

OVERWORKED CONSTRUCTION COMBINE LIMITS NEW PROJECTS

Moscow STROITEL'NAYA GAZETA in Russian 26 Oct 79 p 2

[Article by Correspondent O. Demenin: "A Gesture of Despair"]

[Text] From a USSR Committee of Peoples Control report:
"The Khmel'nitskpromstroy Combine's forces are distributed among 160 construction sites. The program for this year includes 475 objects, to include 329 new ones."

Khmel'nitskpromstroy was inspected to determine whether or not it was storing and utilizing construction materials sensibly. But let us try to look at the figures gathered together in the report from a slightly different angle.

An impressive work load, isn't it? Not every organization is capable of conducting 160 construction projects simultaneously, and of starting up more than 300 new ones. But the Khmel'mitskpromstroy Combine does not have the capability for handling such a work load either. Moreover the combine has been persistently suffering substantial problems for a number of years. Not once in the Tenth Five-Year Plan was it able to complete an annual construction plan.

Sensible business practice and plain common sense have shown to us that the money can keep rolling in only if production is subjected to sophisticated engineering preparation, if the production base is developed, and if progressive work methods are employed. One cannot raise the "ceiling" of an enterprise's income simply by working the keys of an adding machine. The obviousness of this thought cannot be doubted. Nevertheless the plan given every year to Khmel'mitskpromstroy is invariably filled with figures produced by such energetic grinding of an adding machine, figures that are occasionally abstract, having nothing to support them. The 1977 plan for the combine's growth in relation to its actual performance the year before was 50 percent, next year the growth required was 23 percent, and this year it is 39 percent. Such monumental figures! Especially if we consider that the actual average increment in the volume of construction and installation enjoyed by different sectors of our country's national economy does not exceed 4, 5, or 6 percent of the previously attained level.

Let us peek at the title list of construction approved for the combine, and see how its production program was formed.

Inspecting the list, we came across the malt plant in Slavuta. The client for this plant is the Ukrainian SSR Ministry of Food Industry. Responding to an order from the Ukrainian SSR Ministry of Industrial Construction the combine began building the plant in the middle of last year, though without a single page of planning and estimate documents. In April of this year the documents finally arrived. The combine's specialists immediately opened up the voluminous folders. And their bad premonition did not let them down: The plan contained deficiencies which they had long been used to seeing in such plans.

The busy client was in a hurry. He had acquired good imported equipment, and now he needed to have the shops finished as soon as possible. He managed to get the republic Gosstroy to issue a favorable expert evaluation of the plan (without the participation of the builders themselves!), and the ministry added the facility to the combine's plan without delay.

From a Ukrainian SSR Gosplan report: "On the whole for the republic-Ministry of Industrial Construction, as of 1 September 1979 80 million rubles invested into capital construction were not supported by technical documents."

Here is another graphic example of the way the plan is formed: There is talk of building a weaving and spinning factory in Starokonstantinov, but Khmel'nitskpromstroy does not have a single enterprise there that could do the construction. It is for this reason that we hear from the combine that it would take not less than 10 years to build the factory.

It stands to reason that the plan for the enterprise, which is itself based on an older single-story variant, one which would take a considerable amount of land out of agricultural production, would become irreversibly obsolete following such a long period of time.

There are still many unsolved problems having to do with construction in Starokonstantinov. Nevertheless the combine's plan for the next year already contains an investment of not less 6 million rubles for this facility.

In June the chief of the combine's planning department traveled to Kiev with the hope of solving the urgent problems. I. Botsman, assistant chief of the ministry's Main Economic Planning Administration, promised to see that a realistic plan would be approved for the combine for the next year, one within 52 million rubles. Not much later the republic ministry's economists went to the USSR Ministry of Industrial Construction for approval of this plan. What did they come back with? An added 10 million rubles.

From a USSR Committee of Peoples Control report: "As of 1 January 1979 the total remainder of construction not finished by Khmel'nitskpromstroy was equivalent to six annual programs of the combine."

"Nonetheless we would not have complained that even though we now have a large volume of work, new projects are being squeezed in," said Khmel'nitskpromstroy chief V. Bratash. "And in the end we find ourselves having to build the malt plant, the weaving factory, and all of those schools, residential buildings, and clubs that the city executive committee insistently asks us to build. All of these facilities are in fact necessary, but we must have some time to develop our own construction base!"

And in fact we find that the main deficiency of the plans furnished to the combine is neglect of development of its own production base. I should say for the sake of justice that the Ukrainian SSR Ministry of Construction Industry had released money to the combine for this purpose four times in the present five-year plan. All of this money has been spent, as was willed, on construction of a sand quarry and an asphalt handling facility.

How is the combine doing with the rest of its program for the development of its own "rear services"? It is centralizing the assets of its clients on construction of roads and temporary structures. The little money that has been available has been used to build a small reinforced concrete structures plant in Kamenets-Podol'skiy, where production must go on under the open sky, to expand the house building combine in Khmel'nitskiy, and to rebuild some parts of the reinforced concrete structures plant in that city.

Meanwhile the combine, which has been forced to build large numbers of brick buildings, suffers an acute need for industrial structures. The degree of prefabrication here is 20 percent below that of the republic Ministry of Construction Industry as a whole, and it is correspondingly 13, 24, and 37 percent lower than for similar combines in Rovno, Poltava, and Simferopol'. By raising the level of prefabrication we could significantly improve the personnel problem at the combine as well, making it possible to create highly productive teams of assemblers to replace the present teams of masons.

From a USSR Committee of Peoples Control report: "Presently Khmel'nitskpromstroy has an average of only nine workers for every construction project in its plan."

At the beginning of the present five-year plan the specialists of the combine's planning department took the initiative to visit Ukrainian SSR Deputy Minister of Industrial Construction A. Shchepetil'nikov and furnish him with a plan for development of the combine's base in support of the construction program. The deputy minister would not approve the plan, but he did promise to allocate assets for erection of a centralized reinforced concrete articles plant in Khmel'nitskiy with an output capacity of up to

200,000 cubic meters of prefabricated reinforced concrete per year. Three years have passed since that time. The combine has received neither the money nor the documents.

True, the ministry cannot spend its money foolishly. But why not at least send a competent commission to the combine, study the true state of affairs of the local construction base, write off the obsolete structures, and cover the shortage of prefabricated articles with products from enterprises of Ukrpromzhelezobeton?

The last episode in my history of the combine's problems with incomplete projects concerns a recent order published by the chief of the Khmel'nitskpromstroy Combine. It begins with List No 1, a list of the oblast's most important construction projects, to include a canning plant in the town of Kamenka, a tractor machine unit plant in Khmel'nitskiy, and an electromechanical plant in Kamenets-Podol'skiy. Resources may be channeled into construction projects of lower priority only after those above are completely supported by all of the manpower and materials they need. Work can now begin on new construction projects only on the basis of written instructions from the combine commission.

It is a gesture of despair. We can sense within it the resolve to fight whatever clients from the many ministries and even organizations above the combine in order to eliminate the abundance of incomplete projects. And I think that this gesture must be immediately supported by another from the USSR Gosplan, the republic ministry, and the USSR Ministry of Industrial Construction--that of balancing the construction plans against the resources available, and developing the industrial base of construction preferentially.

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CSO: 1821

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JPRS 74913

11 January 1980

USSR Report

INDUSTRIAL AFFAIRS

No. 524



FOREIGN BROADCAST INFORMATION SERVICE

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REPORT DOCUMENTATION PAGE		1. REPORT NO JPRS 74913	2.	3. Recipient's Accession No.
4. Title and Subtitle USSR REPORT: INDUSTRIAL AFFAIRS, No. 524			5. Report Date 11 January 1980	
7. Author(s)			6.	
9. Performing Organization Name and Address Joint Publications Research Service 1000 North Glebe Road Arlington, Virginia 22201			8. Performing Organization Report No.	
			10. Project Task/Work Unit No.	
			11. Contract(C) or Grant(G) No. (C) (G)	
12. Sponsoring Organization Name and Address As above			13. Type of Report & Period Covered	
			14.	
15. Supplementary Notes				
16. Abstract (Limit 200 words) This serial report contains information on the development and productivity of the automotive and tractor industry; electronic and precision equipment; metalworking equipment; construction equipment and building materials.				
17. Document Analysis a. Descriptors USSR Automotive Industry Agricultural Machinery Construction Construction Materials Construction Equipment Electronics Industry Metalworking Equipment Economics b. Identifiers/Open Ended Terms c. COSATI Field/Group 2C, 5C, 13C, 13F, 13H, 13I, 13M				
18. Availability Statement Unlimited Availability Sold by NTIS Springfield, Virginia 22161		19. Security Class (This Report) UNCLASSIFIED		21. No. of Pages 62
		20. Security Class (This Page) UNCLASSIFIED		22. Price

11 January 1980

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INDUSTRIAL AFFAIRS

No. 524

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BRIEFS

AUTOMATIC GAS ANALYZER--The designers of the Smolensk production association "Analitpribor" have developed an automatic gas analyzer "GAI-1". It is intended for the determination of the carbon monoxide content in exhaust gases and can be utilized in technical servicing stations for automobiles, in garages, and helps specialists of the state auto inspection in their work. The device is portable and twice as light as the analogue now being used. Serial production of the novelty has already begun. [Text] [Moscow SOTSIALISTICHESKAYA INDUSTRIYA in Russian 26 Oct 79 p 2] 8970

NEW 'VOLGA' MODEL--Yesterday state tests began on the automobile GAZ [Gor'kiy Automobile Plant]-3102 "Volga". In the morning a column of the light cars left the guarantee technical servicing station for cars of the GAZ and moved through the streets of Moscow. Passers-by looked with curiosity at the bright-blue car at the head. Made longer, a slightly sloped hood, elegant coating. . . And nevertheless it reminded one very much of the "Volga". And it was a "Volga"--the new model. . . This is how the test run began in which several GAZ-3102 cars are taking part. Their route is through the cities of Voronezh, Rostov-na-Donu, Tbilisi, Anapa, Feodosiya, Simferopol', and Khar'kov. The new "Volga", which has already successfully passed plant tests, must now prove itself in natural conditions. Ahead of it are level roads and mountain passes. . . The total distance of the journey is 6,000 kilometers. How does this car differ from the M-24 that is well-known to everyone? The designers paid attention, above all, to the increased safety of the automobile, according to the chief of the design group, commander of the run E. Klutsis. The seats, which have now become more comfortable, are equipped with head rests, the interior panel has acquired softness, and the steering wheel--a wide spoke. All this must protect the driver and passengers from possible shocks. The braking system has been significantly improved, and the wide-profile tires guarantee dependable stability. The motor also underwent design changes, its capacity now being 105 horsepower. This allows the development of speeds up to 150 kilometers per hour. But the main thing is a significant reduction in the number of harmful substances in the exhaust. The car test run is the first step in the state testing. After its return home, the new "Volga" must pass an examination on special routes: dirt roads, cobble-stone roads, and sandy roads. And then--a careful inspection of all joints and parts, and, finally, the assessment of the commission. [Text] [Moscow SOVETSKAYA ROSSIYA in Russian 24 Oct 79 p 4] 8970

'ZHIGULI' SERVICE--Yakutsk, 13 [Oct] (TASS)--A technical servicing station which has been placed into service in Mirnyy guarantees faultless service to Zhiguli owners in conditions of the Far North. More than 3 million "Zhiguli" cars now operate on the roads of the country. In order to help car lovers with the operation and repair of their cars, the AvtoBAZ [Belo-

russian Automobile Plant] has created and is developing a system of service. In the central oblasts of Russia, Kazakhstan, Siberia and other places, technical servicing stations are now operating. The "geography" of the car service is expanding. Technical servicing stations for the "Zhiguli" in Magadan and Magnitogorsk, on Sakhalin and in Vladivostok are becoming its new points. [Text] [Moscow PRAVDA in Russian 14 Oct 79 p 3] 8970

TRUCK TRAILER TRAINS--A column of MAZ [Minsk Automobile Plant]-6422 truck trailer trains in the northern execution has returned from a long test run to the Minsk Automobile Plant. The Minsk designers, in developing a new model, tried to give maximum consideration to those conditions in which the vehicles must operate in Siberia, in the North. For this reason, the MAZ models intended for use in these regions differ in many respects from their serial "brothers". Before putting the new model into assembly line production, it had to be carefully tested. The trailer trucks were loaded on railroad flatcars and sent to the Far East. For the development of the natural resources of Siberia, the North and the Far East, says the chief designer of the Belorussian Minsk Automobile Plant, USSR State Prize Laureate, Doctor of Technical Sciences, Prof M. Vysotskiy, reliable machines are needed. The large-scale freight trailer trucks MAZ-6422, which have returned from their test run, justified our hopes. The composition of the truck trailer train included a triaxial saddle towing unit and a triaxial container carrier-trailer. Load capacity-- 32 tons. The cabin of this machine has an autonomous heater which maintains room temperature here during any frost conditions. The panoramic windshield significantly increases the field of vision. The interior of the cabin is furnished with regard to the latest demands. The trips in the North and in Siberia, as a rule, last many days. And the driver, naturally, gets very tired on the way. The designers took this into consideration. In the cabins of the truck trailers two comfortable sleeping places are envisaged. The MAZ machines started their run from the Tynda region to the Yakutsk side. They went to Ust-Nera and from there moved to Magadan. This territory is rigorous, and its difficult character had to be tried out by the machines. The results of the tests confirmed the correctness of the basic design calculations. [Text] [Moscow IZVESTIYA in Russian 31 May 79 p 1] 8970

AGRICULTURAL TRANSPORT--The first machines with the State Emblem of Quality for the transport of agricultural cargo have been sent to the farms in the non-chernozem region by the collective of the Mytishchinskiy Machine Building Plant. These are the dump truck bearing the trade-mark ZIL-MMZ-554 M. The load capacity of the machines has been increased by 1½ tons. To expand the volume of light-weight agricultural loads, extension boards are envisaged in the complete unit. A system for the reliable sealing of the body has been developed. [Text] [Moscow IZVESTIYA in Russian 5 May 79 p 1] 8970

ELECTRONIC IGNITER--Ordinarily in the process of using an ignition system, the contacts of the interrupter burn, the spark plugs are covered up with carbon, the capacity of the accumulator falls. The electronic ignition block "Iskra-3" eliminates these troubles. It relieves, as it were, the contacts of the interrupter and increases the service life of spark plugs. As a result of the more complete burning of fuel the capacity and economy of the motor are increased and the toxicity of exhaust gases is lowered. The Iskra-3 block can be installed in any automobile with a 4-cylinder carburetor engine and guarantees a voltage on initial winding of the ignition of 360 volt. The minimum operating voltage is 6.5 volts. Price of the block: 42 rubles. [Text] [Moscow SOTSIALISTICHESKAYA INDUSTRIYA in Russian 18 July 79 p 4] 8970

HOT METAL TRUCK--Zaporozh'ye (Correspondent of the Ukrainian News Agency)--The first native motor metal transport on the basis of the large-scale load motor vehicle "BelAZ-531" and the K-700 tractor was created jointly by engineers of the Dneprospetsstal' Plant imeni A. N. Kuz'mina and the Belgorod Auto Repair Plant. The unit, which is intended for interplant transports in metallurgical enterprises, has a load capacity of 30 tons and is capable of conveying shaped rolled metal, ingots, billets, and containers. Given the appropriate reequipment, it can transport hot metal, managing without hoisting cranes. The use of motor metal trucks makes it possible to release more than 200 workers, a considerable number of diesel locomotives and railroad cars at Dneprospetsstal'. The economic effect amounts to 600,000 rubles annually. [Text] [Kiev RABOCHAYA GAZETA in Russian 5 Jun 79 p 1] 8970

AUTOMOBILE PRODUCTION PLANS--The plan for the current year provides for the output of 1,310,000 automobiles in our country. In addition, as the deputy head of the Planning and Economic Administration of the USSR Ministry of Automotive Industry Petr Petrovich Sklyarov reported in an interview with our correspondent, the collectives of the enterprises and associations of the ministry have accepted the social obligation to manufacture another 2,500 automobiles over and above the plan. Among the new models which, without a doubt, interest the rural automobile fans is the "Moskvich 21406". Its serial production began at the Moscow Automobile Plant imeni Leninskogo komsomola. This model differs from the preceding ones by its higher clearance--which is not unimportant in traveling on country roads, and also by its forced-down engine, which operates on A-76 gasoline. The engine power has been increased to 150 kilowatts. A car bearing the trademark VAZ-2121 "Niva" has become very popular among rural workers. This a comfortable fast automobile with a load capacity of 400 kilograms. The car has a powerful engine, excellent maneuverability, and high practicability. The production of the "Niva" this year will increase by more than 30 percent by comparison with last year. The growth in the number of automobile fans requires a decisive improvement in the technical servicing of automobiles, P. P. Sklyarov said further. The volume of services provided to the population by the enterprises of our ministry

will almost double this year by comparison with 1977. The number of automobiles which can be simultaneously turned in for repair--is more than 6,000. It is worth saying that this amounts to 46 percent of the total volume of automobile service in the country. [Text] [Moscow SOVETSKAYA TORGOVLYA in Russian 22 Mar 79 p 4] 8970

MORE EFFICIENT BUS--L'vov. The new LAZ-4202 bus uses less fuel and produces almost no air pollution through exhaust gases. Today the collective of the local bus plant began serial production of these buses. The new LAZ, calculated to hold 95 passengers, differs from earlier models both by the original form of its body, increased maneuverability and the facility of entry. The hydromechanical gear shift automatically shifts speeds, the modernized steering assembly significantly facilitates the work of the driver. The production of this bus for city routes is organized in new production grounds. In the current five-year-plan, a large building complex at the plant has been put into operation. [Text] [Baku VYSHKA in Russian 7 Jul 79 p 1] 8970

AUTOMOBILE REPAIR FACILITY--The construction of yet another enterprise of the automotive industry has begun here. Upon attainment of design capacity, the plant will repair 100,000 engines produced by the Kama Automobile Plant. [Text] [Moscow STROITEL'NAYA GAZETA in Russian 27 Apr 79 p 1] 8970

AXLE REPAIR--In the central design and technological office of the Uzavotranstekhnika Scientific Production Association of the Ministry of Automotive Industry of the Uzbek Soviet Socialist Republic they have developed and introduced, in the automobile enterprise No 80, a stand for the replacement of the middle axle of the motor vehicle KRAZ [Kremenchug Automobile Plant] (Model SSM-1M). The introduction of the stand made it possible to replace the middle axle without removing the rear axle, to improve the conditions and raise the productivity of labor, and to reduce significantly the idle time of the automobile during repair. The conditional annual economic effect is 5,745 rubles. It is recommended for use in motor transport enterprises. [Text] [Tashkent PRAVDA VOSTOKA in Russian 18 May 79 p 3] 8970

NEW TRUCK FUEL--New cargo-carrying vehicles have appeared in Leningrad which use liquified gas instead of gasoline as fuel. Their engines are the same, some changes have been made only in their fuel apparatus. What are the advantages of the new type of fuel? The main advantage is--half the quantity of harmful substances in exhaust gases of such a vehicle. And the most toxic--the [?] part is reduced by almost 90 percent. Besides, for every 100 kilometers of travel of such a vehicle, 4 kilograms less fuel are required than gasoline. The use of gas fuel increases the engine power of the motor. A decision has been taken concerning the gradual transfer to gas of all trucks of the city. The capacity of the Leningrad interconnected facility for liquefied gas is being expanded by a factor of 7, mobile gas filling stations are being received,

soon the construction of stationary ones will be begun. [Text] [Tallin SOVETSKAYA ESTONIYA in Russian 5 Jun 79 p 3] 8970

FREIGHT-PASSENGER VEHICLE--At the Lutsk Automobile Plant of the Zaporzhets Production Association production has begun on a new freight-passenger mini-cross-country vehicle, "LuAZ-969M". In fully-equipped condition, this motor vehicle weighs less than a ton. In 1979 more than 11,000 units will be manufactured at the plant. Competing during the tests with the famous UAZ-469 cross-country vehicle, this small and nimble vehicle easily tore along over impassable roads, without any difficulties crossed river fords, dashing up the river bank, cautiously but very convincingly went down the slope of a ravine. This vehicle is basically intended for the use in rural localities. Its open, 2-door metal body with fold-back rear platform and a soft removable top accommodates simultaneously 4 passengers and 120 kilograms of freight. The capacity of the engine of the "LuAZ-969M" is 40 horse powers. It is laid out to the front and has its basic drive on the front axle. This increases the passability of the vehicle and its steadiness on steep surfaces. In difficult conditions of impassable roads the rear axle engages, which has a blocking of the differential. Still another peculiarity of the design of this vehicle: all of its wheels are equipped with reducing gears and have independent torsion suspension. It remains to be added that the mini cross-country vehicle can develop speeds up to 90 kilometers per hour. Even with a full load, this vehicle can tow a 300 kilogram trailer. [Text] [Moscow TRUD in Russian 15 Jul 79 p 2] 8970

CSO: 1821

CONSTRUCTION, CONSTRUCTION MACHINERY, AND BUILDING MATERIALS

PROBLEMS, SOLUTIONS IN RURAL CONSTRUCTION

Moscow SEL'SKAYA ZHIZN' in Russian 27 Sep 79 p 2

[Article by Kh. Myand, deputy chairman of the republic association Estkolkhozstroy: "Improvement of Rural Construction: 'To the Last Detail!'"]

[Text] When interkolkhoz construction organizations began to be created in Estonia, all farm managers hoped they would be freed of functions and concerns related to capital construction which were not really in their field. But though the system of interkolkhoz associations has become noticeably stronger and has become the principal contractor doing rural construction in Estonia, our cooperative members--and they have had and still have the last word in the system--have repeatedly expressed dissatisfaction with the performance of the building contractors, who still have not managed to relieve the client of all the concerns related to construction.

In the decree of the CPSU Central Committee and USSR Council of Ministers entitled "On Improvement of Planning and Enhancement of the Impact of the Economic System on Raising Production Efficiency and Improving the Quality of Performance" straightforward measures are envisaged to speed up activation of production capacities and projects and to raise the efficiency of capital investments. The collective has indeed seen the principles of this document as reliable guidelines of the work to be done in the republic toward complete satisfaction of rural demands for construction services.

Our principal task is to deliver new construction projects ready for operation "to the last detail" in precise accordance with the allowed construction time.

That indeed is our practice in building houses for rural housing cooperatives. The association has also assumed the obligations of the client, in particular the management of housing construction. It aids kolkhozes and sovkhoses, which have also become our shareholders, to organize cooperatives, it submits dwelling designs for selection, it organizes preparation of technical documentation, and by order of the cooperatives it does the engineering supervision of construction and finances it.

Not everything in this procedure has been worked out as it should have been. But the initial experience in construction "to the last detail" is now in, and there is a realistic possibility of disseminating it as widely as possible. The prerequisites have already been achieved. The average capacity of interkolkhoz contractors [MSO] in the republic exceeds 7 million rubles in terms of the annual volume of construction and installation work, and the largest of them do 11-16 million rubles worth of construction and installation work in a year. Most of the MSO's are operating under the new system of planning and economic incentives, their output-capital ratio is not bad, and they have normal profitability. The association is also ready in terms of the size and qualifications of its staff to assume those functions which are now performed by kolkhozes and sovkhozes. These are substantial obligations: the technical specifications for project planning must be obtained, as must the permit for use of energy resources, and construction organizations must also be given the principal reference points on the site for the buildings and structures to be built, the quality of construction must be monitored, they must participate in filling out documents to cover skrytty work, manufacturing equipment has to be ordered and turned over to the contractors, and so on and so forth.

Performance of all these functions requires specialized knowledge and quite a bit of experience which agricultural specialists may not have. And indeed why should this burden be put on the farms, when they have subscribed their shares to create an entire system capable of coping with all these tasks?!

Of course, if the construction project is to be delivered "complete to the last detail," it is not enough to assign to contractors obligations which are new to them, they must also be given certain additional rights. The first one which is indispensable to transition to the principle of construction "complete to the last detail" is the straightforward accuracy and stability of capital construction plans on kolkhozes and sovkhozes and also of plans for activation of facilities and construction projects of contractors, and the system of continuous planning must be provided for in both cases.

The decision to establish a stable 5-year plan for capital construction (with the assignments broken down by years) beginning with the 11th Five-Year Plan was gratifying to us, and we have to say that we are prepared for that kind of work.

Back in 1977 the Estonian SSR Ministry of Agriculture, jointly with Estkolkhozstroy, made the transition to 3-year continuous planning of capital construction by projects, including the plan for their activation. Our 3-year plan is a working document. At present it is not approved by anyone. But it guides the ministry, the association, and MSO's in their everyday work, and that yields an important constructive result.

After all, when we know in 1979, say, the projects to be activated and the makeup of construction work in 1981, we can prepare ourselves better for production of the necessary fabrications and components, we can build up the

necessary production gear in good time, we can train workers in those specialties which will be needed in greater numbers because of changes in the makeup of construction work. More than that. Our project planning institute now has a project-by-project plan for project planning and surveying. This means a considerable improvement in delivery of project plans and estimates to MSO's. Before introduction of 3-year planning only 62 percent of all the association's projects received project plans and estimates by 1 September, the figure was only 28 percent for projects being carried over to the next year. In 1979 plans and estimates had been furnished for 76 percent of the projects by 1 September 1978, and the figure was 54 percent for projects being carried over to 1980. At the present time the delivery of project plans and estimates is continuing to improve, though we are aware that a great deal still remains to be done. Even now, after all, the entire technical documentation for the coming year should be delivered not by 1 September, but by 1 July of the year preceding the planning year. We are convinced that we will accomplish this.

The second condition necessary to transition to construction complete "to the last detail," is improvement of the practice of material and technical supply. In future the 5-year capital construction plan should be completely balanced against the available materials, manufacturing equipment and power plant equipment. This is a very important task. Its performance also requires radical improvement of the entire performance of the supply system. At present physical resources are allocated through two channels: one portion is delivered to contractors by supply organizations, while the other is delivered to clients, i.e., to kolkhozes and sovkhozes, which must in turn deliver them to the contractors. The needs of interkolkhoz organizations with respect to the first portion are not being met very satisfactorily. On paper, to be sure, nearly everything seems to be in order. You will be doing work worth so-and-so many millions of rubles, they tell us. For every million they assume so much and so much cement, metal, radiators, roofing and other materials. We multiply these figures, and you have what you need, what more could you ask for! But there is something in this that planning and supply agencies do not see or pretend not to see: the so-called "standard amounts per million" used in allocating materials are hopelessly outdated. The resulting gap between the actual needs and those which are planned is enormous. Here are the 1978 figures: our association was allocated 84 percent of the steel it needed, 92 percent of the cement, 73 percent of the glazed tile, 56 percent of the vitreous floor tile, 37 percent of thicker window glass, between 26 and 32 percent of the paints, and only 60-70 percent of the cast-iron pipe. At present a large portion of the strength and energy of the technical personnel of MSO's goes to the search for additional resources and substitutes and to changing designs. In our view there is only one way of doing away with these oversights: construction projects should be supplied materials precisely in accordance with project plans and cost estimates.

But after all a considerable portion of resources are now allocated to contractors through clients. In the system of construction finished "to the

last detail" this is another burden that should be taken off the farms. Moreover, this is the kind of fear that arises: at present if the farms are unable to obtain something, they agree to a substitute or even accept the project without some processing unit or assembly, but as soon as the delivery of these assemblies becomes the contractor's obligation, the kolkhozes and sovkhoses will really begin to demand that the contractor complete the project as designed. And they will be right! This means that we must guarantee full coverage of the equipment and materials needed for projects being built "to the last detail." It seems to us that the responsibility for aggregate supply should be placed on supply agencies by law. Moreover, it would be fair to make it a practice of awarding economic incentives to supply agencies for punctual and complete supply of materials and equipment to construction projects. The portion of the bonus envisaged for activation of projects on schedule or ahead of schedule should be set aside for that purpose.

The third condition of the transition to construction complete "to the last detail" is establishing order in the services responsible for unpacking, inspecting, setting up before installation, and control assembly, testing and adjustment of manufacturing equipment as well as the delivery of nonstandard equipment.

It might be objected to what I have said that some of these procedures are not covered by law. It is said that they ought not to be, since equipment is supposedly of high quality and complete when delivered. Yes, that is the way it should be. But you cannot escape reality. At present kolkhozes and sovkhoses spend a great deal of time and energy readying the assemblies, processing units and components which arrive. Insofar as these costs exceed the cost estimate, the farms which are the clients pay the difference from their principal activity. If in future the farms are to pay for the project finished "to the last detail" in accordance with the cost estimate, the contractor will have the problem: from what source is this work to be paid from? Who will do it?

Our opinion is that the duties of readying manufacturing equipment and deliveries of nonstandard equipment could be made the responsibility of the State Committee for Supply of Production Equipment for Agriculture; a firm procedure would be established whereby the client farms finance this work in excess of the estimated cost, and in the justified cases they would be entitled to adequate reimbursement of costs by supplier plants.

We are convinced that as the projected steps are taken to improve the economic system, there will also be solutions to these and other problems whose solution is indispensable for delivery of projects finished "to the last detail" to become the rule at every rural construction site.

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CSO: 1821

CONSTRUCTION, CONSTRUCTION MACHINERY, AND BUILDING MATERIALS

OFF-SITE RURAL HOUSING CONSTRUCTION EMPHASIZED

Moscow SEL'SKAYA ZHIZN' in Russian 24 Nov 79 p 1

[Editorial: "More New Tenants"]

[Text] Zinaida and Mikhail Nikiforov, young workers of the sovkhos Krasnyy Frontovik in Pskovskaya Oblast, received a generous wedding gift: they were presented the keys of a two-room apartment in a new street of the sovkhos settlement. Even here, on the transformed land of the Russian Nonchernozem Zone, and in thousands of other villages, one of the principles of the decision of the July (1978) Plenum of the CPSU Central Committee is being implemented: the need for greater attention of party, Soviet and trade union organizations and economic entities to the business of reorganizing rural areas and improving the housing and the cultural and consumer services of rural workers.

Providing well-equipped housing to the rural population has become one of the important elements of the party's present farm policy. Over the last 13 years more housing has been built in rural localities than the housing stock which all the country's cities had before the war, in 1940. Current plans call for addition of nearly 12 million square meters of housing for sovkhoses and kolkhoses alone. Quite a bit of housing will go to other agricultural enterprises, and it will be built by private contractors. The solidity and permanence of new structures have increased incomparably, along with the provision made for utilities. There is steady improvement in the project planning of housing construction; more and more it is being based on a system of progressive standards. The principal guideline here is that as a rule families are furnished well-equipped detached dwellings with garden plots and outbuildings for livestock, poultry and their own vehicles.

New opportunities for fuller satisfaction of the needs of the rural population for well-equipped dwellings is being opened up by the decree of the CPSU Central Committee and USSR Council of Ministers entitled "On Further Development of Off-Site Production of Wood Panel Houses and Sets of Wooden Components for Houses Built From Local Materials for Rural Housing Construction." Plans for the next few years call for new construction or expansion of 78 housing construction and woodworking enterprises, 23 machinebuilding

and metal manufacturing plants and 31 enterprises in the building materials industry. The purpose is to build a solid foundation for off-site production of dwellings for rural locations that will meet both present and future requirements. In addition to housing construction combines themselves, plants will be built to produce stock sanitary engineering pipe, materials and other articles necessary to manufacturing and outfitting the dwellings. Under contracts with the clients they are delivered along with the components for farm construction projects. The relevant production plants are being built on a new technical base in the timber and woodworking industry, the building materials industry, the chemical industry, the petroleum refining industry and the petrochemical industry. The largest construction ministries and the greatest efforts of machinebuilders, metallurgists and workers in a number of other departments are being enlisted to build a practically new sector of the economy--off-site rural housing construction.

Kolkhoz members and sovkhoz workers and all rural workers welcomed the decree with a feeling of deep gratitude to the party and government for the new concern it has shown for improvement of rural living conditions. They are convinced that everyone responsible for implementing the decree will do everything possible so that the sector comes into being precisely on schedule. Moreover, they know in rural areas that a number of enterprises for production of up-to-date wooden-panel houses are already in operation. They have been built, for example, by interkolkhoz construction organizations in Penzenskaya Oblast, Lithuanian and Latvia. However great their difficulties may be in adjusting production and obtaining all the adequate materials and equipment, it is important to be more persistent in bringing these capacities up to rated output and to move faster with designs. Greater efforts have been undertaken in recent years by the USSR Ministry of the Timber and Woodworking Industry to produce the housing needed in rural areas. Even now its enterprises are able to speed up the manufacture of dwellings in the new series and to give fuller consideration to the demands that have arisen.

From the very first days of implementation of this very important special-purpose program, local party, Soviet and economic entities were called upon to actively supervise solution of the problems it raises. At the same time unstinting attention must be paid to other aspects of activity involved in speeding up rural housing construction. In recent years fair-sized capacities for fully prefabricated housing construction have been built in the USSR Ministry of Rural Construction and interkolkhoz construction associations. But they are not all being satisfactorily utilized, especially in Bryanskaya and Orlovskaya oblasts, Krasnoyarskiy Kray, and a number of other regions of the country. Effective measures need to be adopted to overcome the lag of housing construction on the farms of Kaluzhskaya, Voronezhskaya and Chitinskaya oblasts and a number of rayons in the Ukraine and Kirgiziya.

Activity related to private and cooperative construction partially financed by rural inhabitants needs to be invigorated. The agricultural production administration of Yaroslavskaya Oblast Ispolkom took the proper steps after

it was criticized: it was proposed that explanatory work be done in all kolkhozes and sovkhozes in order to discover families willing to build their own houses on preferential terms. The same procedure should be followed in other regions of the country as well. The problem of punctual information to the public about housing designs which have been prepared for rural areas remains unsolved. In a number of places housing continues to be accepted in an unfinished state. In the settlement Kochetov in Chuguyevskiy Rayon of Khar'kovskaya Oblast, for example, personnel of Sel'khoztekhnika have moved into a 15-unit apartment house. "The design," N. M. Durasov writes, "called for basement rooms and outbuildings. None of that was done. Even in the apartments themselves everything had to be redone--whitewashing and painting...." The joy of new tenants cannot be allowed to be darkened because of people who do careless work and those who let them get away with it!

The correct approach to rural construction, one that takes into account the peculiarities of the life and interests of the rural population, along with a resolute attitude of greater exactingness toward all those involved in carrying out the projected steps to speed up housing construction, will be an important step toward gradually overcoming differences in cultural and consumer services between the city and rural areas.

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CSO: 1821

CONSTRUCTION, CONSTRUCTION MACHINERY, AND BUILDING MATERIALS

PROBLEMS IN AGRICULTURAL CONSTRUCTION OUTLINED

Moscow STROITEL'NAYA GAZETA in Russian 30 Sep 79 p 2

[Article by D. Kondrashov, secretary of the Tul'skaya Oblast Party Committee: "The Systems Approach Is Needed"]

[Text] The article by S. Dement'yev, deputy chairman of RSFSR Gosstroy, entitled "The Client Is Holding Things Up," which was published in STROITEL'NAYA GAZETA, No 65, 1979, thoroughly exposes the state of affairs with adoption of "Orel continuity" at construction projects of the Nonchernozem Zone.

In the 10th Five-Year Plan 1.33 billion rubles of capital investments, or 1.8-fold more than was invested in the years of the Ninth Five-Year Plan, have been appropriated for development of agriculture in Tul'skaya Oblast. The oblast party organization is directing the efforts of local party and Soviet agencies and all participants in agricultural production toward sensible use of these tremendous funds and toward comprehensive transformation of the appearance of rural areas.

We are well aware that given the considerable shortage of manpower resources in the oblast successful performance of these tasks depends largely on improved organization of the construction process in rural areas and above all on adoption of "Orel continuity" from the design stage to actual construction.

In Tul'skaya Oblast preparation for adoption of continuous planning and flow-line construction began in 1977. A coordinating center was set up in association with the oblast ispolkom and has been doing its work, in the oblast agricultural production administration there is a work group, and in the oblast's organizations doing contract work--Glavpriokskstroy and the oblast kolkhoz construction associations--there are operations control centers. The oblast ispolkom has approved "Measures To Prepare and Adopt the System of Long-Range Flow-Line Construction (SIDPS) in 1978 on the Basis of Comprehensive Continuous Planning" and "Recommendations Concerning the Organizational Structure and Procedure for the Functioning of the Coordinating Center."

Two general project planning institutes have been designated: Tulagipro-sel'khozstroy and Tulakolkhozstroyproyekt of the oblast kolkhoz construction association. Specialists of the design and production planning institute of the USSR Ministry of Industrial Construction have been enlisted to compile a binding schedule for flow-line construction. The functions of the single client have been turned over to the capital construction administration for kolkhoz construction on 206 farms, to a unified construction directorate on 116 sovkhoses, and to directorates for construction of complexes and other projects within the associations Yasnaya Polyana and Privol'ye.

Binding schedules for construction of residential and cultural and consumer service facilities on the oblast's sovkhoses were compiled in 1978 and 1979. Under these documents construction and installation work is to be done on 607 projects to be completed and to be carried over.

Some results have been achieved. Experience has been gained in building large highly mechanized complexes for milk production (with a unit capacity of 800-1,200 head) and for raising and fattening cattle, sheep and poultry. Last year the flow-line method of construction was extended over rural housing projects representing 88,000 square meters of effective floor space (the construction time of rural housing was 1 month less than in 1977), 5 children's preschool institutions, and 3 regular schools and other facilities providing social, cultural and consumer services. Work has been done to provide conveniences and build rural roads in the amount of 11.3 million rubles.

The share of large-panel housing construction is growing every year in rural areas. Once the rural housing construction combines are put into operation in the cities of Suvorov and Shchekino and the large-panel housing construction plant undergoes reconstruction in Novomoskovsk, the total capacity for panel housing construction in the oblast will reach 400,000 square meters in 1982 and 1983. Measures toward comprehensive development of settlements are being carried out to improve the living conditions of rural workers. The oblast party committee has created a council for guidance and supervision over construction of nonproduction facilities with the secretary of the party obkom serving as chairman. A council has examined measures related to comprehensive project planning and construction in the 1980-1985 period of 70 rural settlements for the personnel of 149 farms: 85 sovkhoses and 64 kolkhoses.

Experimental development of the central homestead of the Kolkhoz-Plant imeni Lenin in Novomoskovskiy Rayon in accordance with improved project plans will make it possible to diversify and upgrade construction of rural settlements in the oblast. Dissemination of this experience will create the most favorable conditions for adoption of "Orel continuity" in rural areas.

At the same time there are a number of reasons for failures in fully adopting this method in agricultural construction so far. The 2-year plans and construction flows which have been drafted in rural areas are not uncommonly

amended while the work is going on. Oblast and rayon agricultural production administrations lack competent specialists capable of compiling sound multiannual plans and of making competent expert evaluations of project plans and cost estimates.

The directorates which have been set up are not altogether solving the problems facing rural construction. The trouble is that the directorates have not been granted the authority to coordinate the actions of all the services of the clients. That is why the shaping of the plan goes slowly in the oblast as a whole.

Fulfillment of rural construction plans is made more difficult because there is no catalog of current designs of dwellings and buildings for cultural and consumer service facilities in the Nonchernozem Zone, nor a unified classification of technologies and production of equipment related to fodder production and removal and cleaning of agricultural waste.

The structure of the client's service needs to be improved and standards should be devised for the size of the staff handling capital construction at the oblast and rayon level. It is obvious that capital investments to build depots for aggregate supply of rural construction sites should be specifically designated for that purpose. The project planning institutes Tulagiprosel'khosstroy and Tulakolkhosstroyproyekt need qualified personnel and housing construction funds to purchase office machines and vehicles.

In our opinion, if these problems were solved by the appropriate ministries and departments, above all the RSFSR Ministry of Agriculture, it would be easier for the oblast party organization to perform the tasks defined in the decree of the CPSU Central Committee and USSR Council of Ministers concerning the Nonchernozem Zone.

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CONSTRUCTION, CONSTRUCTION MACHINERY, AND BUILDING MATERIALS

DECREE ON OFF-SITE RURAL WOOD HOUSE CONSTRUCTION

Moscow STROITEL'NAYA GAZETA in Russian 18 Nov 79 p 3

[Outline of decree adopted by the CPSU Central Committee and USSR Council of Ministers: "Activities of the CPSU Central Committee and USSR Council of Ministers"]

[Text] The CPSU Central Committee and USSR Council of Ministers have adopted a decree entitled "On Further Development of Off-Site Production of Wood Panel Houses and Sets of Wood Components for Houses Constructed of Local Materials for Rural Housing Construction."

The decree notes that in recent years a number of steps have been taken in the country to promote the further development of agricultural production and the public services and social amenities of rural settlements. But the existing construction capability is not keeping up the necessary pace in construction of dwellings and cultural and consumer service facilities in rural localities, nor is it meeting the rural population's need for well-equipped houses.

It is recognized that one of the most important directions for improving the organization of housing construction in rural areas is to develop off-site production of wood panel houses and also to increase substantially the output of sets of wood components for dwellings whose walls are constructed from local materials.

In the interest of developing off-site production of dwellings for rural localities the CPSU Central Committee and USSR Council of Ministers have made it the duty of the central committees of the communist parties of the union republics, kray and oblast party committees, councils of ministers of union republics, USSR ministries and departments, and local Soviets of People's Deputies to give priority to full-fledged development of the production capability of industrialized housing construction in rural localities by building new enterprises and expanding existing ones for the production of up-to-date wood panel houses and also sets of components for dwellings whose walls are constructed from local building materials.

The USSR Ministry of the Timber and Woodworking Industry, a number of other USSR ministries and departments, and councils of ministers of union republics have been assigned the task of seeing that enterprises of the industry and within interkolkhoz construction organizations achieve a production of wood dwellings manufactured off site to 7.1 million square meters of total floor space per year by 1985 and 11 million square meters by 1990 and also to bring the production of sets of wood components for dwellings whose walls are constructed from local materials up to 8.5 and 12.2 million square meters of total floor space per year by those respective years. During that period plans call for building and expanding 78 housing construction and woodworking enterprises, 23 machinebuilding and metal manufacturing plants and 31 enterprises of the building materials industry. Housing construction combines are to be located so as to bring them as close as possible to raw materials and the areas where housing is to be built.

The USSR Ministry of the Timber and Woodworking Industry, the USSR Ministry of Internal Affairs, the USSR Ministry of Industrial Construction, the USSR Ministry of Rural Construction, the USSR Ministry of Construction, the USSR Ministry of Construction of Heavy Industry Enterprises, the USSR Ministry of Transport Construction and Ministry of Power and Electrification, the RSFSR Council of Ministers and Ukrainian SSR Council of Ministers have been ordered to make provision for new construction and expansion in the 1980-1989 period of housing construction and woodworking enterprises, plants for production of sanitary engineering pipe stock, nonstandard manufacturing equipment and spare parts for it.

The State Committee for Public Works Construction and Architecture of USSR Gosstroy has been given the responsibility of conducting a uniform technical policy in the design and erection of factory-made wood houses, the organization of research and development projects in this field, and enforcement of construction standards and codes.

The USSR Ministry of the Timber and Woodworking Industry is ordered to conduct a uniform technical policy in the field of wood house manufacture, to introduce progressive manufacturing methods, to develop specifications for manufacturing equipment, fabrication materials, finishing materials, and components, to design house manufacturing enterprises, to conduct scientific research into the technology of wood house manufacturing and to create effective materials derived from wood, and to develop methods of transporting fabrications to construction sites.

The decree calls for construction of single-story and two-story houses so as to take into account natural and climatic conditions, complete with wiring and plumbing and a choice of heating systems for different fuels. Under contract with clients dwellings would be delivered along with kits for farm buildings.

At enterprises of the USSR Ministry of Construction Materials Industry and also a number of other ministries there are plans to build new and expand

existing capacities for production of building materials. Provision has been made for construction of plants that manufacture rock wool products, gypsum-fiber and cement-shaving board, and asbestos-cement and gypsum-paper-board sheets.

The Ministry of Machine Tool and Tool Building Industry has been given responsibility for developing, putting into production and manufacturing flow, automatic and semiautomatic lines and highly productive sets of equipment for the production of wood panel dwellings, parquet floors, millwork and other wood products, as well as the functions of general supplier of these production lines and equipment. To develop the machinebuilding capability a number of enterprises for the production of woodworking equipment are to be expanded in the 1980-1984 period.

The Ministry of Construction, Road and Municipal Machinebuilding and Ministry of Chemical and Petroleum Machinebuilding, in cooperative arrangements with other ministries, have been given assignments for developing and manufacturing a variety of manufacturing equipment for the production of materials and products indispensable to the production and outfitting of factory-made dwellings. There are specific plans to organize the output of production lines for cement-shaving board, gypsum-paperboard sheets and Arbolite panels, glass bundles (steklopakety), lines for coloring asbestos-cement sheet, and equipment for manufacturing rubber and plastic components.

The USSR Ministry of Chemical Industry and the USSR Ministry of Petroleum Refining and Petrochemical Industry are recommended to take steps toward a considerable increase in the production of products of the chemical industry for housing construction--foamed plastics, caulking and sealing materials, polyethylene film, resins, paints and other materials.

The USSR Ministry of Aircraft Industry, the USSR Ministry of Installation and Special Construction Work, the USSR Ministry of Ferrous Metallurgy, the USSR Ministry of Gas Industry, the Lithuanian SSR Council of Ministers and Latvian SSR Council of Ministers, in the interest of fitting out factory-made wood houses, have been given assignments for delivery of heating units, plumbing equipment, valves, aluminum products, steel strip and electrical supplies to housing construction enterprises.

In the interest of expanding the training of qualified workers for the wood housing construction industry, the target has been set of building eight vocational and technical schools in the 1981-1983 period.

Performance of work to build panel houses and houses constructed with walls made from local materials in rural localities has been made the responsibility of the organizations of the USSR Ministry of Rural Construction and interkolkhoz construction organizations, and in regions where these organizations do not exist, the responsibility has been placed on construction and installation contractors of other construction ministries.

Councils of ministers of union and autonomous republics and ispolkoms of kray and oblast Soviets of People's Deputies have been issued a recommendation that they see to the punctual preparation of plans for layout and general development of rural settlements with a view to extensive use of wood-panel dwellings and dwellings made with sets of wood and other components combined with walls made of local materials in the development of these settlements.

Councils of ministers of union republics, Tsentrosoyuz and the USSR Ministry of Trade have been ordered to take steps to develop the trade in factory-made wood houses and sets of wood and other components for dwellings constructed from local materials. USSR Gosplan and USSR Gossnab are ordered to make provision in the preparation of drafts of annual plans for an increase in market stocks in accordance with the orders of the USSR Ministry of Trade and Tsentrosoyuz for the purpose of off-site manufacture of wood houses and sets of wood components for houses with walls of local materials, and also for plumbing, heating and electrical equipment, slate, glass, cement and other building materials and products.

The CPSU Central Committee and USSR Council of Ministers has expressed confidence that the central committees of the communist parties of the union republics, kray and oblast party committees, councils of ministers of union and autonomous republics, ispolkoms of kray and oblast Soviets of People's Deputies, and the work force of agriculture, industry and construction will take all necessary steps to perform the exceedingly important task of reorganizing rural settlements.

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CSO: 1821

CONSTRUCTION, CONSTRUCTION MACHINERY, AND BUILDING MATERIALS

INTERVIEW WITH RSFSR RURAL CONSTRUCTION MINISTER

Moscow STROITEL'NAYA GAZETA in Russian 28 Nov 79 p 3

[Interview with N. Mal'tsev, RSFSR minister of rural construction, by staff correspondent I. Svirin: "Plant--Transportation--Project"]

[Text] The role of rural construction combines and current problems in their further development have been the subject of a campaign conducted by STROITEL'NAYA GAZETA under the heading "Rural Construction Combines: Development Strategies." It has culminated in a conference-seminar held in the city of Kalinin. The RSFSR Ministry of Rural Construction has jurisdiction over the largest number of present SSK's [rural construction combine]--22. Our correspondent, I. Svirin, called upon N. Mal'tsev, RSFSR rural construction minister, to tell about those organizational and technical steps which the ministry intends to take in the interest of further improvement and development of SSK's.

Question: Nikolay Semenovich, we would like to begin our interview with an evaluation of the conference-seminar in Kalinin.

Answer: This conference was the first we know of to assemble such a representative council concerning the problems of a very effective new form for organizing rural construction. And we must say that the people in the industry have shown great interest in it. This is understandable. After all, the practical experience already gained shows that the organization of SSK's is an appropriate answer to the problems of industrialization--to transforming rural construction sites into sites where buildings are assembled from factory-made highly prefabricated components. This is also enhancing the prestige of the rural builder's profession as he masters up-to-date techniques. And finally, there is the possibility of delivering a project "finished to the last detail."

The conference was also worthwhile because the ministry prepared good displays of equipment, fabrications used in industrialized building, and model

rural homestead dwellings which are original in their architecture and which have good layout and construction features, while the people in Kalinin familiarized the guests with the organization of production and construction at their own SSK.

Question: Of course, the effectiveness of the conference is directly dependent on how the proposals and remarks expressed there are carried out. What is the ministry undertaking in this regard?

Answer: That is so. But do not forget that we have been involved in organizing SSK's for several years. We have followed carefully the campaign entitled "The SSK: Development Strategies," which has been conducted by STROITEL'NAYA GAZETA. There has also been a discussion in the literature from the standpoint of practitioners. So we came to the conference after analyzing everything that has been gained in the process of operating the SSK's. But actual practice, as we know, knows no prejudices and spares no one.

Question: Nikolay Semenovich, forgive me for saying so, but at present the work is going badly....

Answer: Agreed. The principal shortcoming is that the organizational structure of rural construction combines has not been brought into full conformity with the "Temporary Guidelines on Organization and Activity of SSK's" nor with the principles of our own order which we issued jointly with RSFSR Gosstroy. A considerable number of rural construction administrations and trusts have not transferred to the operational jurisdiction of SSK's their motorized construction krays, organizations for the performance of special construction work, and mechanization sections. That is, the "plant--transportation--construction project" conveyor has not been altogether linked up to form a single chain. And what is the result? We quickly set up the "little boxes" of buildings, but when we begin to equip and finish them, it goes slowly. As we see, the principal task for which the SSK was created is not being performed; they are not always delivering finished projects to the plant by any means.

Moreover, the capabilities of the combines are not being fully utilized.

Question: And even main administrations are not furnishing the SSK's all the cement, metal and millwork they require. Production is held back....

Answer: Well, production is not being held up. Though we cannot deny cases of interruptions and incompleteness of deliveries. This is very costly to the collectives of the SSK's: the pace of operation of plants and builders is disrupted, and probably deadlines will not be met for putting the projects into service.

Question: What steps is the ministry taking to link up the entire "plant--transportation--construction site" chain and to support the work of the SSK,

as it is now customarily termed, to deliver products "finished to the last detail"?

Answer: An order has been prepared in which extensive measures are outlined. I will discuss the principal ones which bring us closer to a solution to the problem. Beginning in January 1980 the SSK's become responsible for performance of all the construction and installation work, including finishing, required for the above-ground portion of buildings. By the end of this year we will set up and place under jurisdiction of SSK's and DSK's [housing construction combine] motorized construction crews, sections for specialized construction work and mechanization, and we will staff and equip them. Our ultimate task is to bring the combines up to their rated capacity and to see that they fulfill their assignments for their volume of work and activation of finished projects. Beginning in January of the coming year all the combines will begin to operate in accordance with this structural scheme.

Those combines which themselves use at least 90 percent of their own fabrications and products we will put on a unified construction balance sheet. In the coming year all installation, general construction, transport and excavation crews of SSK's we will put on a subcontracting basis, and we will develop competition among them.

So that there are no disruptions in the operation of SSK's we intend to organize the supply of materials and equipment on the basis of the physical volume of operations called for in the approved program. These resources will be specifically allocated to the SSK's.

Question: How are relations with the client taking shape, and what shape should they take?

Answer: The principal problem is to organize straightforward planning of the load on the SSK. In this area a great deal depends, of course, on the client. It is very important to adopt the Orel experience with "continuity." Jointly with RSFSR Gosstroy and the republic agriculture ministry we have begun an experiment in 2-year planning of rural construction in a number of oblasts. But we have not yet been able to achieve much in this important area. The reason is that the client has not been able to fully carry out those steps which he has planned. Even good 2-year plans for organization of construction are frequently not fulfilled. Now if the client does not remove obstacles to "continuity," then a repetition of the situation that has come about will make it still more difficult to solve the problem: the volume of construction is growing larger every year.

Question: Nikolay Semenovitch, thank you for the interview. Let me take this opportunity to congratulate you cordially on your 60th birthday and your high government award and wish you good health and creative achievements.

Answer: Thank you very much!

CONSTRUCTION, CONSTRUCTION MACHINERY, AND BUILDING MATERIALS

STANDARD NET OUTPUT INDICATOR IN BUILDING MATERIALS INDUSTRY

Moscow STROITEL'NAYA GAZETA in Russian 28 Sep 79 p 2

[Article by I. Osipov, Acting Chief of Glavmospromstroymaterialy, and V. Kovalenko, Deputy Director of the Design and Technology Office, Mosorgstroymaterialy: "Contrary to the Magic of Gross Output"]

[Text] Everybody involved with matters of planning and economic incentive knows that this system, which is based on gross indices, has come into a sharp conflict with the party's elaborated policy of increasing efficiency of production and is not linked with the end results of economic activity. This has predetermined the search for new indices which would not submit to the magic of "gross" and would not operate contrary to the economic interests of the state.

The result of this search is the "standard or normative net output" (NChP) indicator, which was adopted three and a half years ago in the practical operations of enterprises of Glavmospromstroymaterialy. Twenty-four pre-cast reinforced concrete plants began utilizing it experimentally in January 1976. Two years later it was employed for planning and performance evaluation of all 77 associations and enterprises of five branches of the main administration, representing a total work force of 70,000.

Our experiment, alongside experiments at the Ministry of Heavy and Transport Machine Building, Ministry of Power Machine Building and other agencies, helped not only find but also elaborate many elements of planning on the NChP indicator and became a foundation, as it were, in determining ways to improve the economic mechanism, which subsequently were formally stated in the CPSU Central Committee and USSR Council of Ministers Decree entitled "On Improving Planning and Strengthening the Influence of the Economic Mechanism on Increasing Production Efficiency and Work Quality."

Three and a half years is a sufficient amount of time in order comprehensively to evaluate the new indicator, to perform the requisite analysis of this indicator, and to draw conclusions. Just was is this indicator?

The NChP is a newly created value, which includes wages of industrial production personnel, contributions to social insurance, and profit. Net output is determined on the basis of standard amounts which comprise a portion of the wholesale price, obtained by subtracting from it material outlays figured in plan-specified production cost. Put in simpler terms, one can state that this is an indicator which enables one to effect enterprise planning and incentive on the basis of enterprise labor outlays, without utilizing the cost of purchased materials in evaluating enterprise performance.

The shift to planning and evaluating the performance of plants in the new manner was implemented in four stages. First we established a system of stable net output standards, then prepared annual and five-year NChP plan targets for production volume and labor productivity, introduced the requisite changes into the wage bonus systems, reorganized accounting and record keeping and, finally, adopted the new indicator in practical shop planning and performance evaluation.

Naturally reorientation of work forces to utilization of this indicator is no simple matter; there are many difficulties involved.

The first stage was the most laborious, that is, the stage of elaboration of standard amounts. It comprised approximately 70% of all labor outlays on adoption of the new indicator.

How do we employ the normative net output indicator in our work?

It forms the basis of annual and five-year production plans. Its growth rate also determines the size of economic incentive funds. It has also been introduced as the principal indicator in wage bonus provisions for engineer-technician personnel and white-collar workers.

This is not only a fair but also an economically substantiated indicator, adequate to generation of national income in the nation's economy. But its main virtue lies in the fact that it exerts direct influence on growth in production efficiency and improvement in product quality.

Take the precast reinforced concrete enterprises, which have been operating with the new indicator longer than other branches, and consequently the results of its employment have been tested by time to a greater measure. In 3 years labor productivity in this subbranch has increased by 11.9%, with a plan-targeted 10.9%. The result is the labor of 1,800 workers saved. The rate of putting new product items into production has doubled. In the past we would add as many as 350 new product items each year, while now the figure has climbed to 700, and as a rule these are items with less materials requirements (incidentally, organization of production of a broad variety of product items of a uniform catalogue, and more than 2,500 item designations for the 1980 Olympics was resolved only thanks to the new indicator. The end result in construction was achieved with less material outlays). The materials requirements of precast reinforced concrete were reduced by approximately 2% during this time, that is, savings

of 64,000 tons of cement were achieved, plus 9,000 tons of metal, more than 12,000 tons of standard fuel, approximately 16 million kilowatt hours of electricity, etc.

Fulfillment of product list plan targets improved appreciably because enterprises stopped dividing products into profitable and unprofitable, and the time required to supply all components of fully prefabricated buildings was reduced by 10-15%. Product quality also improved.

An analysis of enterprise operations indicates, however, that possibilities for increasing production efficiency are not yet being fully utilized. Of the three value indices contained in the present system of planning and evaluation of work force performance, two (production volume and labor productivity growth) are determined on the basis of NChP, while the third, most important one — profit — is still dependent on price level.

With the current principles of pricing, the level of prices continues to be closely linked with the materials-intensiveness of production. Therefore at the first stage of employment of normative net output we were unable fully to eliminate the influence of the factor of materials intensiveness on comprehensive evaluation of enterprise performance results. In addition, net output standard amounts were individual. This led to a situation where differing standard amounts would be set for one and the same products produced at different enterprises.

The above-mentioned CPSU Central Committee and USSR Council of Ministers Decree, in order to give associations and enterprises more incentive to achieve better utilization of productive assets and to achieve savings in raw materials, provided for determining profitability in the manufacturing branches of industry, broken down by product categories, as the ratio of product to production cost, minus the cost of utilization of raw materials, fuel, power, supplies, semimanufactures and component items. It was established that when introducing new wholesale prices one should simultaneously determine the net output standard amount for a corresponding item, proceeding from above-average labor intensiveness standards.

This solution creates a uniform basis for formation of a system of economic indices, including prices. Glavmospromstroymaterialy, working in coordination with the USSR State Committee for Prices, undertook an attempt to establish prices and net output standard amounts which would meet these requirements.

The Mosorgstroymaterialy Design and Technology Office, with the participation of the Scientific Research Institute of Prices, created a method according to which wholesale prices and net output standard amounts for production of prefabricated reinforced concrete and concrete structures are elaborated on a uniform basis and consolidated in so-called experimental price lists. Price List No 06-08 for reinforced concrete products was approved by the USSR State Committee for Prices on 16 April, while Price List No 06-14-01, for concretes, mortars, concrete components and other

product items, was approved by the RSFSR State Committee for Prices on 18 April 1979. Both become effective on 1 January 1980, for a period of 2 years, for all Moscow construction industry enterprises.

In these price lists profit in prices is established in relation to total industrial production ~~personnel wages~~ and depreciation additions to fixed assets. Alongside elaboration of wholesale prices, average branch net output standard amounts were determined in parallel.

The new pricing methodology strengthens enterprise economic incentive to put into production items which are less materials-intensive. The magnitude of profit in the price decreases for designs and component parts involving high consumption of raw materials and supplies; on the other hand, profit increases in product items with lower materials intensiveness. After these price lists become effective, we must perform a thorough analysis of the results of employment of new prices and net output standard amounts in order to be prepared for the forthcoming revision of wholesale prices.

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CSO: 1821

CONSTRUCTION, CONSTRUCTION MACHINERY, AND BUILDING MATERIALS

CONSTRUCTION ORGANIZER CONFERENCE HELD

Moscow STROITEL'NAYA GAZETA in Russian 24 Oct 79 p 2

[Article by L. Komarovskiy, STROITEL'NAYA GAZETA special correspondent: "Presently Only One Standard: Comments On All-Union Conference of Construction Organizers and Process Engineers"]

[Text] Twenty centuries have passed since Ancient Roman architect and scholar Marcus Vitruvius Pollion defined the triune root problem of construction: utility, strength, beauty. But today this is not enough. Today we know very well that in addition to all else, it is necessary to build fast, on a large scale, and economically, or in other words efficiently.

This task is particularly complex because, as stated in a report at the all-union conference entitled "Principal Directions of Technical Advance in Organization and Technology of Construction Production," a conference organized by the board of the Scientific and Technical Society of the Construction Industry, USSR Gosstroy, the USSR Ministry of Construction of Heavy Industry Enterprises, and the Belgorodskaya Oblast CPSU Committee, by I. A. Ganichev, deputy chairman of USSR Gosstroy, production facilities representing an estimated cost of approximately 500 billion rubles are presently under construction. At the same time we are building approximately 350,000 facilities of production designation with an annual volume of construction and erection work of approximately 37 billion rubles.

As we can see, the gap between the first and second numbers is large, and it is not decreasing with time, although many correct and needed documents have been adopted to prevent scattering of capital spending. The result of this situation is that today, with a more than "sparing" standard -- 65% -- uncompleted construction comprises 85%. The duration of construction of many enterprises substantially exceeds standard timetables. The situation as regards providing construction projects with resources and supplies has also become sharply aggravated in recent years. There is a shortage of manpower on the overwhelming majority of construction jobs. And this is not surprising: even considering that more than 11 million persons are employed in our branch, the scattering of manpower is such that the average number of persons working per construction job is 13.

This is certainly a difficult situation. And there is only one solution -- earliest possible implementation of the CPSU Central Committee and USSR Council of Ministers Decree entitled "On Improving Planning and Strengthening the Influence of the Economic Mechanism on Improving Production Efficiency and Work Quality."

The effectiveness of any decision depends on the concrete executing personnel. We all know that a plan should include only those construction projects for which design-estimate documentation and working drawings for a year's work are available by 1 September. And yet it is universal practice that general contractor organizations begin construction on projects which are not fully supplied with documentation. The decree on improving the economic mechanism specifies shifting the documentation submission deadline back two months -- to 1 July. This practice will be adopted in 1981. But will it be effective? I. A. Ganichev appealed to the conferees to abandon the practice of mutual bureaucratic rule and strictly to observe plan and contract discipline -- only in this manner is it possible to extract maximum benefit from a most important document adopted by the party and government.

One substantial problem is the disordered character of construction management in the various regions of this country. This matter was discussed by I. A. Bystrov, chief of the organization and technology of construction division of USSR Gosstroy, and V. V. Shakhparonov, deputy director of the TsNIIOMTP [Central Scientific Research Institute of Experimental Design for Organizing, Mechanizing and Rendering Technical Assistance to Construction]. The figures cited by them enable us to analyze the reason for slow growth of, and in a number of cases decrease in labor productivity at construction sites. For example, the territorial main administrations of the USSR Ministry of Construction of Heavy Industry Enterprises, the USSR Ministry of Industrial Construction, and USSR Ministry of Construction perform on the average not more than 30% of construction and erection volume in the areas where they are operating. An additional approximately 30-40% of construction volume is performed by the remaining construction ministries. And approximately one third of construction volume is performed by organizations subordinate to industrial, agricultural, transport and other ministries, agencies, and Soviets. Each of the numerous small construction organizations operating in the same territory but subordinate to various ministries and agencies establishes its own production base, thus increasing requirements in additional capital spending and worsening effectiveness of utilization of fixed productive assets and labor resources.

Practical experience of construction in Tyumenskaya Oblast convinces us that this is so. A great many organizations involved in the development of Western Siberia handle their own construction needs. The most diversified agencies, even agencies which are far from construction, such as trade, maintain their own small and poor-capability construction administrations, sections, etc. It is impossible to establish a powerful construction base with such a scattering of manpower and assets. Naturally the number of persons employed in little-productive labor on auxiliary jobs is also increasing. Only 71% of the workers in our branch are engaged in construction and erection jobs, while the remainder are working at auxiliary

operations and enterprises. And this is more than 2 million persons!

Today, even taking into consideration the acute need for such material as steel, the construction sector is proceeding along a different path: it is taking into consideration not only the factor of obtaining production as rapidly as possible, but also efficiency of plant construction. Particularly interesting in this regard was a statement made by P. A. Zhurilo, chief of the Elektrometallurgstroy Combine of the USSR Ministry of Construction of Heavy Industry Enterprises. The combine is building a very large electrometallurgical enterprise near Staryy Oskol, which will produce 7 million tons of oxidized pellets, 5 million tons of metallized pellets, 3.5 million tons of steel, and 2.7 million tons of merchant shapes and sheet. According to preliminary calculations, the cost of just the first unit of OEMK is estimated at 885 million rubles, while the amount of capital spending on construction of this project each year should reach the level of the Kama Automotive Plant complex.

The combine has been under construction for slightly more than 3 years. The overwhelming majority of the invested funds have been spent on base enterprises, housing, and site preparation for this future Soviet metallurgical giant. Work on the Staryy Oskol project began with the proper sequence: roads, service lines, housing, and construction industry. Unfortunately few construction projects can make this claim.

Construction began with observance of all regulations, and we should like the construction site to be a school at which other construction people can learn, right up to the final day of construction on this combine. This is precisely the intent of the USSR Ministry of Construction of Heavy Industry Enterprises naming the combine at Staryy Oskol a demonstration-model construction project.

The workers are of the same opinion. Consolidated combined brigade leader V. Glushenko, for example, who came here from the Kama Automotive Plant, claims that engineer preparations at Staryy Oskol are much better. But there could be some improvement with supply! Do we have once again a supply shortage situation? Unfortunately the brigade leader is right. There is food for thought here both for the work organizers at the "model-experimental" project and their supervisors at the USSR Ministry of Construction of Heavy Industry Enterprises.

The conferees discussed at length and in detail problems of organization. A suggestion by G. E. Korotkovskiy, manager of Glavsreduralstroy's Orgtekhstroy Trust, unquestionably merits close attention in connection with this. Analyzing the process of engineer preparation, he reached the conclusion that one of the principal components of this process is a full and detailed list of all construction-installation and other jobs which comprise the plant erection process. But such a list is created in fact when preparing the estimate. It is not recorded, however, but remains in the mind of the estimating official. Later this work is again per-

performed by production organizers directly in the construction subdivisions. Utilizing a certain method, one can immediately furnish information to practically all subsystems of the future construction project.

On the whole the conference was very useful, and particularly because it made it possible to determine realistic ways and means to carry out the measures specified by the CPSU Central Committee and USSR Council of Ministers Decree on Improving the Economic Mechanism.

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CSO: 1821

CONSTRUCTION, CONSTRUCTION MACHINERY, AND BUILDING MATERIALS

COORDINATED SUPPLY PLANNING URGED

Moscow STROITEL'NAYA GAZETA in Russian 2 Dec 79 p 2

[Article by Doctor of Economic Sciences Professor A. Mitrofanov, Director of the Scientific Research Institute of Construction Economics: "Continuous Action of Plans"]

[Text] Much time and effort goes into producing the end product of construction even within limits of standard figures — years of hard work are required to prepare technical documentation and carry out construction and erection work. Management activity pertaining to coordinating the efforts of the many participants in the capital investment process is more complex in construction than in any other sector. Economic management practice clearly demonstrates that stable plans alone, which were discussed in the previous commentary, are insufficient for correct and prompt resolution of the problems which arise. Also essential is continuous action of these plans.

Under conditions of erection of complex production facilities and plant complexes, and implementation of large-scale programs, which basically characterizes today's construction, securement of continuous action of plans is an essential precondition for successful operation.

As has been stated numerous times in the past, in current planning practice annual construction schedules are constantly being restructured, and frequently with substantial deviations from annual five-year plan targets. They are revised, but essentially each year itemized lists are prepared anew for carryover construction. To this we should add that at the same time one must settle anew all questions pertaining to contract, supply, and financing, that is, the construction flow is interrupted in all activity categories at the point of juncture between annual plans.

The situation is changing radically with issuance of the CPSU Central Committee and USSR Council of Ministers Decree on Improving the Economic Mechanism. The established system and procedure of elaboration of inter-coordinated long-range and current plans effectively accomplish the task of ensuring their continuous operation.

The existence of a comprehensive program of scientific and technological advance covering a period extending 20 years into the future and basic directions of this country's economic and social development covering 10 years into the future, supplemented every five years by calculations for the following five-year plan, will continuously focus construction ministries and the USSR Gosstroy system on volumes, shifts in placement and character of programs and direction of technical policy in construction in the plan-covered period. Advance preparation of control figures for the forthcoming five-year plan (one year before it begins) and a draft stable five-year plan (not later than five months prior to initiation of the five-year plan) will ensure continuous operation of five-year plans. Lists of newly-begun enterprises and structures, lists of existing facilities slated for renovation and expansion, as well as itemized lists remaining unaltered for the entire period of construction, with targets broken down by years, ratified as components of the five-year plans, become the basis of the mechanism of continuous operation for the construction people. Stability and continuity of operation of itemized lists will also be secured by their mandatory character not only for clients and contractors but also for planning, finance, banking and supply agencies as well as suppliers of equipment and structures.

Continuity of action will also affect directly and primarily current construction working schedules. Under conditions of a stable five-year plan and an annual plan drawn up in advance on the basis of the five-year plan, in combination with measures specified in the decree pertaining to ensuring continuous financing and supply, this problem can also in principle be resolved.

Continuous financing is secured by extensive opportunities to obtain bank credit for all construction project participants: clients, contractors, general suppliers of complete sets of equipment, and design organizations. A number of measures have been directed toward this in the area of supply. Changeover of construction projects, specified by the state plan, to comprehensive supply on orders submitted by construction organizations will be completed in 1981. Orders for delivery of basic process and power equipment should be drawn up for the entire period of construction, and for delivery of metal structures as a rule not less than for a period of 2 years in advance. On the whole further development and strengthening of long-term direct economic relations, universal dissemination of advanced forms of supply according to the production-process batch supply method, expansion of the practice of deliveries and installation of complete sets of equipment, means of mechanization and gear by the general supplier, and increasing financial liability of supply agencies and transport organizations will help ensure continuous and guaranteed supply.

Hard, persistent work to achieve these prerequisites is needed. We can learn much in this area from the wealth of experience of the Orel construction people as well as many construction work forces in Moscow, Leningrad, Kiev, Alma-Ata, Vil'nyus, rural construction workers in the

Southern Urals, Moldavia, and elsewhere. The main thing in this experience is a combination of a continuously operating two-year plan with organization of long-term supply flows, centralization of client functions, regulation of supply, and coordination of the work of design organizations.

We believe that the USSR Ministry of Industrial Construction has found a successful organizational-technical solution to utilization of a "two-year plan" within the framework of the five-year plan, with organization of industrial long-term (five-year) construction flows for single-type industrial installations and facilities. The system of measures specified for this aims at coordination of the work of planning agencies, equipment suppliers, design, engineering, scientific research, construction and installation organizations. The ministry has already acquired practical experience in employment of such a system for industrial continuous flow construction in the construction of petrochemical and oil refining facilities.

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CONSTRUCTION, CONSTRUCTION MACHINERY, AND BUILDING MATERIALS

CONSTRUCTION MANAGEMENT INNOVATION DISCUSSED

Moscow KOMSOMOL'SKAYA PRAVDA in Russian 13 Oct 79 p 2

[Article by KOMSOMOL'SKAYA PRAVDA Correspondent V. Kachurin: "Toward Innovation -- In the Old Way"]

[Text] In the 22 September issue of KOMSOMOL'SKAYA PRAVDA a report entitled "Toward Innovation -- In the Old Way...." stated that an experiment has been in progress for 6 years now on construction projects in Magadan. Initiated successfully, it has been losing steam year by year. What is hindering efforts to synthesize this interesting experiment and apply it to other construction projects it is proves worthwhile? Our correspondent decided to seek the answer at the USSR Ministry of Construction of Heavy Industry Enterprises.

"But we have already synthesized and disseminated it." V. I. Zolotarev, chief of the ministry's organization of labor and wages administration, requested that the document be brought. He was handed a thick file folder bearing the number 26. It contained a detailed scientific and technical report drawn up by staff members of the Scientific Research Institute for Organization and Management in Construction under the Moscow Construction Engineering Institute imeni V. V. Kuybyshev. It was titled "Adoption of the New Form of Linear Management."

Briefly, the innovation consists in the following. The traditional structure of construction management at the "section-brigade" level is not efficient enough. Its main problem is duplication and unclear distribution of functions between section chief, job superintendent, foreman, and brigade leader. The people at Magadan decided to simplify the management system. The brigade leader, also performing the foreman's functions, became the sole and fully-authorized person of responsibility at the construction site, while the foremen and job superintendents henceforth dealt primarily with engineering preparation for construction.

The Magadangorstroy Trust achieved savings of 1,644,000 rubles from adoption of this new innovation just in the first nine months of last year!

The people developed a greater sense of responsibility for the results of collective labor, outlays on alterations were reduced, there was less machinery and equipment idle time, organization and quality of work improved, as did morale and psychological climate in the brigade. In addition, the trust received excellent opportunities to adopt the brigade contract.

The institute recommended that construction project supervisors "adopt the low-level management system as soon as conditions are established." But unfortunately the recommendations remained on paper. Why was this? I found in the thick red file a letter from Magadan, in which the "trust work force" demanded "termination of the experiment which had been forced" upon them. Here is one of the arguments presented by the anonymous authors: "The brigade leader became financially liable and accountable, but he was given no legal rights or powers...."

It is true that the degree of his responsibility for the state of safety regulations, for example, was also not defined. Pursuant to USSR State Committee for Technical Supervision Regulations, responsibility is borne only by those engineer-technician personnel specified by the staff schedule. Since the position of brigade leader-foreman is not specified by the staff schedule, Gostekhnadzor does not recognize it.

Up to the present time nobody is really sure how the brigade leader-foreman should be paid. In the Magadangorstroy Trust he is figured in the brigade and is paid according to the work pay schedule. In the Krasnoyarskpromkhimstroy Trust and at the Glavmurmanskstroy Combine, brigade leader-foreman wages come from the management personnel fund plus a bonus for performance below specified normative time, safeguarding of structures and savings in materials. At the Vinnitsapromstroy Combine, where only engineer-technician personnel are designated brigade leader-foreman, they have a fixed salary with additions and a supplementary amount for brigade leadership. In short there is a lack of full clarity even in strict financial dealings.

Just what is the brigade leader-foreman? At enterprises of USSR Mintyazhstroy [Ministry of Construction of Heavy Industry Enterprises] he is as a rule a highly-skilled worker. At USSR Minpromstroy [Ministry of Industrial Construction] he is an engineer. In the first instance specialists are concerned that the most experienced workers will be moving over to a new position from the sphere of material production. In the latter case they wonder whether an engineer, receiving a fixed salary, will have less incentive to improve the brigade's performance.

Scientists proposed: "Call the brigade leader 'brigade foreman,' as in oil and gas exploration." But then there is apprehension that there will be a sharp increase in the number of engineer-technician personnel.

Let us see what the statistics say. On construction projects of USSR Mintyazhstroy there are 19,000 brigades and 26,000 foremen, job superintendents, and section chiefs. If the brigades are consolidated, only

10,000 brigade leader-foremen will be needed. These positions can be filled with "eliminated" foremen and job superintendents. The benefit is obvious: they will take worker slots, that is, come into the sphere of material production.

In brief, the experiment is developing in two directions. And it is strange that up to the present time -- several years have passed -- there is no firm evaluation: which direction is the correct one? There is as yet no unanimity of opinion among the members of the Mintyazhstroy board. Nor has the All-Union Scientific Research and Planning Institute of Labor in Construction of USSR Gosstroy yet voiced its opinion. The Irkutsk combined division of this institute analyzed as early as 1975 the preliminary results of the Magadan experiment. The scientists' conclusion was that this innovation should be extensively adopted. Four years have gone by, and it turns out that this topic has just been placed in the scientific research plan for 1979. If the experiment continues to be "studied" at such a pace, there will scarcely be any benefit derived.

For the moment one thing is clear: the powers and authority of the engineer and the incentive of the worker should be combined in the brigade leader-foreman. In addition, he should be highly skilled in two or three related specializations, possess organizing ability and knowledge of the fundamentals of economics. The consolidated cost-accountable brigades presently need precisely such supervisors. But where can they be obtained? On this point both the supporters and opponents of the experiment are unanimous: personnel must be trained. There are many gifted brigade leaders at the construction projects, but there is no system for training them. And yet such a system is absolutely essential: the job superintendent still frequently prepares the economic contract or calculated cost for the brigade leader-foreman.

Here is a telegram which illustrates the situation: "The 'brigade leader-foreman' experiment has not been very widely adopted in the Vologdapromstroy Trust due to a limited period of operation and lack of the requisite foreman personnel capable of combining these functions. Rozov, acting trust manager."

Before beginning the experiment in Magadan, obviously all the pros and cons should have been carefully weighed. Yes, there are stable cadres at northern construction projects, but this stability is by no means due to excellent conditions and progressive organization of labor. What did USSR Mintyazhstroy do to ensure the viability of the new structure at all levels? To arrange for uninterrupted supply of this remote construction project?

Three years ago the Mintyazhstroy board approved the Magadan experiment and proposed achieving precise coordination of all elements of the experimental system, continuous-flow organization of construction, improvement in drafting of operational and long-range brigade work plans, organization of brigade leader-foreman training, and finally, changeover of all brigades to

cost accountability under their direction.... What was the result? This long list of recommendations was not carried out. And although all brigades amicably "shifted over" to economic accountability in the reports for that same Magadangorstroy Trust, in actual fact things are not that way at all.

While not totally convinced of the utility of the Magadan experiment, the ministry instructed several main administrations in Siberia, the Urals, Kazakhstan, and the Ukraine "to carry out a similar experiment" in order, on the basis of its results, "to work out the most efficient management scheme." Considerable time has passed, and yet the scheme has not yet been worked out. In addition, the procedure and conditions of the experiment have not yet been coordinated with USSR Gosstroy, the USSR State Committee for Labor and Social Problems, and the USSR Ministry of Finance, while without such coordination and agreement there will be no ratification of the status of brigade leader-foreman and wages for such a position, a statute on his authority and obligations, or training of brigade leader-foremen on a special program.

File No 26 continues to receive additional documents. I found in the file many letters with the request that construction organizations approve the position of brigade leader-foreman. USSR Mintyazhstroy, USSR Minpromstroy, and the Central Committee of the Trade Union of Workers in Construction and the Building Materials Industry prepared the latter jointly. But the ministers have not yet signed it. It was explained to me that before signing they must be at least 90% sure that this new innovation is warranted. As yet they are not entirely sure.

The recent CPSU Central Committee and USSR Council of Ministers Decree entitled "On Improving Planning and Strengthening the Effect of the Economic Mechanism on Improving Production Efficiency and Work Quality" stresses the particular significance of the brigade form of organization of labor and labor incentive, which should become the principal form in the 11th Five-Year Plan. Interest in the person of the brigade leader increases immeasurably under these conditions. What sort of a person should he be? How does he participate in production management? The work forces of construction jobs are waiting for an answer to these questions. The dragged-out Magadan experiment is also awaiting completion.

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CSO: 1821

CONSTRUCTION, CONSTRUCTION MACHINERY, AND BUILDING MATERIALS

FULFILLMENT OF CONSTRUCTION PLAN IN BELORUSSIA REVIEWED

Minsk ZVYAZDA in Belorussian 4 Nov 79 p 1

[Article: "Construction Reserves Into Action"]

[Text] An ambitious building program is designated for the fourth year of the five-year plan. New fixed assets in this republic are to total 3,652.4 million rubles, with state capital spending of 3,260.2 million. Many construction work forces are honoring with outstanding labor achievements the 62d anniversary of the Great October Revolution and are meeting boosted socialist pledges. For example, good success has been achieved by construction workers in putting new facilities on-stream at the Mogilev Khimvolokno Production Association, on construction of the Grodno Synthetic Fibers Plant, the Luninets plant for the manufacture of electric motors for agriculture, and at other construction projects in this republic.

In the construction sector there are thousands of leading workers and production innovators, who are not only meeting plan-specified targets and socialist pledges but are also close to completing five-year plan targets.

Nevertheless, for the construction sector as a whole the situation remains disturbing as regards completion and movement on-stream of production facilities, housing, utilities, municipal and public services. In the first nine months of this year, for example, a total of 1,833.2 million rubles of fixed assets in the republic as a whole were to come on-stream, financed by state funds, or 50% of the annual target. The actual figure was 1,535.2 million rubles, which comprises 84% of the nine-month target and 42% of the year's target.

The nine-month housing construction target was not met. A total of 1,581,700 square meters of housing financed by state funds was to be completed for occupancy, but the actual figure was 1,410,000. Capital investment underspending on construction of general-curriculum schools exceeds 3 million rubles.

Such construction organizations as Trust No 35 in Minsk, trusts No 13 in Bobruysk, No 27 in Gomel', and No 4 in Minsk, Grodnopromstroy, and others

had particularly low performance figures. In order to meet the plan-specified target, organizations of the Belorussian SSR Ministry of Industrial Construction must complete almost 400 million rubles worth of construction by the end of the year, or 52% of the year's target.

All this attests to the fact that complex and responsible tasks face construction organizations. Somewhat more than a month remains to the end of the year. During this time it is necessary not only to put on-stream the plan-targeted production capacity but also to build a solid foundation for successful performance in the final year of the 10th Five-Year Plan. This can be accomplished only under the condition of a sharp acceleration in the work pace, implementation of all reserve potential, concentration of manpower and equipment on jobs to be completed this year, and precise coordination of all entities participating in construction.

Successful accomplishment of plan targets and pledges also depends in large measure on correct organization of construction activities, improved construction management, skillful utilization of equipment, and creation of conditions for high-productivity work at every work station. There still frequently occur instances where cranes, excavators, bulldozers and other equipment work only one shift. For example, in the majority of this republic's construction organizations the shift factor for earth-moving equipment is 1.1-1.2, with the standard 1.4-1.5. And yet we have considerable reserve potential for boosting labor productivity and reducing labor intensiveness. If we increase the shift factor by only 5%, for the republic as a whole we can accomplish a work volume equal to more than 35 million cubic meters. For purposes of comparison, this figure is the year's work volume for the Belorussian SSR Ministry of Rural Construction.

The practice of totaling up the results of socialist competition requires further improvement. When designating winners in labor competition, it is necessary to make a fundamental evaluation of the performance of work forces and individual workers who have average performance results, as well as those below average. It is extremely important to take measures in a flexible and efficient manner to eliminate the factors disturbing a smooth work rhythm. We must work persistently to improve moral and material incentives for competition participants and link competition closely with boosting production efficiency and excellent work quality.

Genuine success will be achieved when a single, unified construction flow is operating without interruption at all stages. And this becomes possible under the condition that all persons involved in construction -- from designers to installation and finish crews -- adopt a work completion countertarget.

Of course general contractor organizations bear principal responsibility for accomplishing the construction program. However, the client's services should be equally responsible for construction job completion. Direct obligations of the clients include precise selection of construction site and timetable, provision of thorough technical and economic substantiation, and determination of the realistic performance capabilities of

construction work forces. Their miscalculations prove very costly. It is not normal when design and estimate documentation sometimes contains numerous errors, when equipment orders and equipment deliveries are delayed, and when construction schedules frequently fail to match supply and support capabilities.

It is extremely important at the present time to concentrate manpower and resources on projects scheduled for completion this year and to set up work operations with two or three shifts. Economic executives, party and trade union committees must more vigorously incorporate advanced know-how and increase the effectiveness of socialist competition and quality of performance. We must through joint efforts secure unconditional fulfillment of the year's target as regards putting completed facilities on-stream.

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CSO: 1821

METALWORKING EQUIPMENT

REVIEW OF HEAVY MACHINE BUILDING

V. F. Zhigalin Comments

Moscow EKONOMICHESKAYA GAZETA in Russian No 48, Nov 79 p 2

[Article by V. F. Zhigalin, Minister of Heavy and Transport Machine Building]

[Text] Along with the successes of the sector, the deficiencies were also correctly noted in the review "Heavy Machine Building" (weekly No. 42). A number of enterprises and associations have not fulfilled the plan for nine months of 1979 in volume and nomenclature. Capacities are not being satisfactorily developed and the machine tool equipment has not been fully loaded. There are deficiencies in organization of production and labor and a significant turnover of personnel. The causes of the deficiencies were also correctly pointed out in the review.

Mintyazhmash [Ministry of Heavy Machine Building] has analyzed the results of the work of associations and enterprises of the sector and has designated specific measures to improve their activity. Attention has been turned toward the need to increase the production growth rates, to increase labor productivity and to improve the work of the material and technical supply services and cooperative deliveries and equipment to starting objects. Measures have also been provided for more intensive introduction of new technology into industry, for more complete use of equipment, development of production capacities and a reduction of personnel turnover.

The coming tasks of administrations and departments, All-Union production associations, production associations and plants of the sector in fulfilling the plan of the fourth quarter and of 1979 as a whole have been determined in the order throughout the ministry. Moreover, a number of measures is planned for implementation on realization of the 1980 plan. Specifically, a decision has been made to prepare the industry for output of products with closing of "bottlenecks" and to create additional capacities by fulfilling organizational and technical measures during the fourth quarter of 1979.

A. N. Pankov Comments

Moscow EKONOMICHESKAYA GAZETA in Russian No 48, Nov 79 p 2

[Article by A. N. Pankov, Deputy Minister of Industrial Construction of the USSR]

[Text] Correct analysis of the situation in construction of the Bezhitskiy and Kremenchug Steel Casting Plants of Mintyazhmash is given in the review "Heavy Machine Building." Disruption of the established deadlines for turnover of capacities for operation in production of steel castings was primarily the result of deficiencies in organization of construction and installation work here and poor support of the construction sites with personnel and material and technical resources.

Additional measures have now been adopted to support construction of the Bezhitskiy Steel Casting Plant with a work force. A total of 600 persons--250 more than in September--is now working on objects of the starting complex. The course of constructing the enterprise was reviewed by Minpromstroy [Ministry of Industrial Construction of the USSR], Mintyazhmash and Minmontazhspetsstroy [Ministry of Installation and Special Construction Work] of the USSR. Measures were adopted to complete construction of the first unit of the steel casting shop.

Capacities to produce 5,000 tons of steel castings annually were put into operation at the Kremenchug Steel Casting Plant. Measures are being adopted to start up the second unit of the complex. Minpromstroy of the Ukrainian SSR has already given instructions to increase the number of workers here and to support the construction sites with additional material and technical resources.

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METALWORKING EQUIPMENT

REVIEW OF MACHINE TOOL INDUSTRY

Moscow EKONOMICHESKAYA GAZETA in Russian No 48, Nov 79 pp 1-2

[Article: "Year Four of the Five-Year Plan for Machine Tool Building"]

[Text] A special role belongs to the machine tool and tool making industry--the key sector of domestic machine building, which is the basis of its technical equipping and re-equipping--in the decision of the tasks advanced by the 25th CPSU Congress to increase social production efficiency. The production equipment produced by this sector comprises the main part of the main production funds of machine building enterprises. An increase of efficiency and the rates of acceleration of technical progress in machine building production depend on its productivity and quality in a decisive manner.

As can be seen from the published diagram, machine tool building was developed at high rates during three years of the current five-year plan. The volume of commercial product output at enterprises of Minstankoprom [Ministry of the Machine Tool and Tool Building Industry] increased by almost 32 percent during three years. More than 569,400 metal-cutting machine tools with total cost of 4.22 billion rubles, more than 11,200 forge-press machines worth more than 1.23 billion rubles and 318.7 million rubles' worth of production equipment for the foundry industry were produced. Metalworking tools worth approximately 1.78 billion rubles were manufactured. The tasks of three years of the five-year plan were over-fulfilled in output of production equipment and diamond and abrasive tools.

The production volumes at enterprises of Minstankoprom increased by 109.9 percent in 1976, 120.8 percent in 1977 and 131.8 percent in 1978, with 1975 taken as 100 percent. It is important to note that the high growth rates of product output are accompanied by significant restoration of manufactured equipment, appreciable changes in improvement of its structure and outstripping growth of production of the most efficient equipment. These trends were also reflected in the economic indicators of sector development.

Intensive restoration of models and organization of production of more efficient and complex machines were specifically manifested in the fact

that the increase of equipment output outstripped its quantitative growth in cost (with a reduction and even some decrease of wholesale prices for serial products). Thus, the output of machine tools increased by only 3 percent in units in 1978 compared to 1975, but their total cost increased by 26 percent. Improving the structure of metalworking equipment was also reflected in increasing the fraction of forge-press machines and production equipment for the foundry industry from 26.2 percent (by cost) in 1975 to 27.3 percent in 1978.

The number of metal-cutting units with automatic and semi-automatic control reached one-fourth of the total machine tool output. The fraction of universal forging-press machines equipped with means of automation and mechanization has increased more than fivefold compared to 1975 and has exceeded 10 percent.

Production of equipment with numerical program control (ChPU) is being developed especially rapidly. A total of 12,204 metal-cutting machines and 620 forging-press machines with ChPU have been produced at enterprises of Minstankoprom during three years. The tasks provided for this period by the five-year plan have been significantly overfulfilled. The sharp increase of multioperational machine tools with ChPU, so-called "machining centers," introduction of which provides the greatest saving, is especially valuable. If the total growth of output of machines with ChPU comprised 38 percent, the number of manufactured multioperational machine tools with automatic tool replacement increased 4.4-fold and reached 215 units in 1978, while approximately 350 of these highly productive machines will be manufactured this year. It is planned to manufacture a total of 5,013 machine tools with ChPU in 1979.

The output of machine tools with ChPU by Minstankoprom was 3,638 units in 1976, 4,050 units in 1977, 4,516 units in 1978 and a planned 5,013 units in 1979.

Production of automatic manipulators (robots) with program control was begun at enterprises of Minstankoprom during the Tenth Five-Year Plan. A total of 82 of them were produced in 1978 with a planned 60 units and more than 150 have already been manufactured this year, while it is planned to bring their output up to 330 units in 1980. The fraction of high- and especially high-precision machine tools is also increasing. The task of four years of the five-year plan for this group has already been overfulfilled by 4,500 units. A further increase of product output by the machine tool and tool industry has been provided during 10 months of the current year. However, the sector is lagging somewhat behind the planned boundaries.

Progressive changes in the structure of machine tool and tool production have become possible as a result of intensive development of the production and technical base of machine tool building itself, typical for the 10th Five-Year Plan. Capacities are increasing both due to new construction and

due to reconstruction of enterprises, their technical re-equipping and improvement of the technology and organization of production.

One of the important factors of providing high rates of growth of product output is an increase of the utilization factor of existing plant capacities and also the shift coefficient of equipment operation and primarily of machine tools with ChPU.

The shift coefficient on machine tools with ChPU was a total of 1.41 throughout enterprises of Minstankoprom at the end of 1976. The shift coefficient of operating the entire stock of these machine tools (which reached almost 3,000 units throughout the sector) increased to 1.7-1.8 as a result of improving the operation of this equipment, organization of two-shift operation and of three-shift operation for unique equipment. The labor of hundreds of machine tool operators is being saved annually as a result of converting parts machining to machine tools with ChPU at enterprises of the sector.

To The Level of the Leaders

The machine tool builders are solving complex problems during the fourth year of the five-year plan. Production of special, specialized and unit machine tools should be increased by 3,600 units and the output of means of automation and mechanization for universal press machines should be increased by one-third. Enterprises of Minstankoprom should manufacture 90 more complete sets of automatic lines for machine building and metal-working this year than last year. Labor productivity will be increased by more than seven percent.

The results of the work of Minstankoprom during the past period of 1979 indicate that, despite a significant increase of production achieved during 10 months compared to the same period of last year, many enterprises have not reached the planned level in a number of technical and economic indicators.

A total of 119 enterprises have not coped with the tasks on output of main products in nomenclature and tens of plants have not coped with the task in product sales and an increase of labor productivity. The national economy has been short-changed with a large amount of metal-cutting machines, forging-press machines, casting equipment, metal-cutting tools and also some other types of products. Among the lagging plants are primarily enterprises of VPO, Soyuztyazhstankoprom (the chief is V. Glukharev), Soyuzstankoprom (the chief is V. Sachkov) and Soyuzkuzmash (the chief is A. Grishkov).

The All-Union production associations must adopt decisive measures to render the necessary help to the enterprises, to strengthen the discipline of cooperative deliveries and to more actively utilize the experience of leading collectives in order to eliminate the permitted lag and to provide

stable operation next year to Minstankoprom. It is the efforts of the leading enterprises that provided overfulfillment of the planned tasks by the ministry on output of machine tools with ChPU, automatic lines, consumer goods and spare parts for agricultural machines and automobiles.

The Moscow Krasnyy Proletariy Plant--the main plant of the machine tool building association--emerged as the innovator of a socialist competition in the sector at the beginning of the five-year plan under the slogan "Provide first-class equipment for the five-year plan of efficiency and quality." L. I. Brezhnev in his greetings to the collective of the enterprise highly evaluated the creative call of the Krasnyy Proletariy workers. One of the pledges of the collective was to provide output of products for the foreign and domestic market according to unified specifications, that is, according to unified technology which ensures high quality. A total of 19 models (of 24 different sizes) of machine tools is now being manufactured at the plant in this manner. More than 85 percent in the total volume of commercial product output include articles with the Badge of Quality. The collective of another capital plant--the Automatic Production Line Plant imeni 50 Letiya of the USSR--was the initiator of a socialist competition under the slogan "Provide a guarantee of quality from the design to the product." The SKB [Special Design Office] of Automatic Production Lines and Special Machine Tools and supplier plants of parts and complete sets of products and the users of the products are also participating in this movement. The fraction of products with the State Badge of Quality comprised 55 percent during the third quarter at the Plant imeni 50-Letiya SSSR. The plant is coping successfully with fulfillment of all the tasks of the 10th Five-Year Plan.

The Odessa Precision Machine Tools Plant imeni 25th CPSU Congress is fulfilling all its adopted pledges successfully. The fraction of products with the State Badge of Quality was supposed to reach a total volume of 61.8 percent in 1979. It actually comprised 69.9 percent during nine months. The use of production capacities reached a coefficient of 0.95. The shift coefficient of equipment operation of the main shops was increased. The tasks of four years of the five-year plan on the growth rates of commercial product output and labor productivity have already been overfulfilled here. The fraction of products of high category of quality in the total production volume of Minstankoprom was 10.7 percent in 1976, 15.6 percent in 1977, 24.0 percent in 1978 and a planned 31.5 percent in 1979.

It is important to universally disseminate the experience of leading enterprises. This will be especially valuable for the weakened positions and "idle" plants--the Dmitrov Milling Plant, the Sasovo Automatic Production Line Plant, the Orenburg Association Gidropress and the Pinsk Foundry Equipment Association.

Output of New Equipment

Being on the leading edge of the struggle to accelerate technical progress, the sector is called upon to persistently improve the level of product

output and to actively introduce innovations. The plan for development of science and technology during nine months of 1979 by enterprises, scientific and design organizations of Minstankoprom was fulfilled by 101.8 percent. However, four plants--the Novosibirsk Tyazhstankogidropress, the Minsk Plant imeni Oktyabr'skoy Revolyutsii, the Dmitrov Milling Machine Plant and the Central Volga Machine Tool Building Plant--did not overfulfill the plan in a single task. Manufacture of three adjustable series of new highly efficient machine tools with ChPU was not completed by these enterprises, while the Central Volga Plant manufactured the adjustable series of a new lathe with ChPU in incomplete volume of 41 units instead of 45.

A total of 590 experimental models, including 309 models of metal-cutting machine tools, machines and equipment and 543 adjustable series, was manufactured during three quarters. A total of 123 products of obsolescent designs was taken out of production. As can be seen, the sector planned to produce 31.5 percent of products with the badge of quality during 1979. This indicator is already equal to 31.7 percent during 10 months.

A total of 35 specialized, complexly mechanized shops and machining sections, unit assembly, painting and packing sections was organized this year in the sector. In this case 520 machine tools with ChPU was introduced. The saving from reducing the cost of product output will comprise 26.1 million rubles in 1979 due to these measures. The relative reduction in the number of workers is 12,900 persons.

At the same time, the volume of work remaining until the end of the year is still very high in the area of science and technology development. This requires that Minstankoprom, the VPO and enterprises intensify the rates of developing new types of products and introduction of progressive technology. Even more so since a lag has been permitted for some trends of technical progress. Thus, the plan of confirming state standards was fulfilled by only 30 percent by Minstankoprom during the first six months and development of CEMA standards was delayed. There are violations of the requirements of the standards and specifications at many enterprises of the sector, which leads to a reduction of product quality.

The machine tool builders need the active support of their efforts by the related enterprises that deliver the materials and complete sets of products. This is primarily true of the plants of ferrous metallurgy and the electrotechnical industry, which are still in debt to machine tool building.

Development of a joint socialist competition by the "Workers' relay-race" principle will help to ensure a further growth of output of highly efficient equipment for machine building and metalworking and will create good prerequisites and a strong base for successful fulfillment of the tasks of the 10th Five-Year Plan by the machine tool and tool building industry.

Progressive Methods

Minstankoprom, its associations and enterprises are now preparing to implement the decisions of the party and government on improvement of the economic mechanism. One of the most important trends of this work is strengthening of planned and contract discipline, ensuring product output within the nomenclature provided by the plan and product deliveries according to agreements and issued orders.

A volume of finished products which permits completion of railroad flat-cars, rail cars or trucks, with regard not only to the direction of the freight recipient but also of the contract deadlines of deliveries must be available at the warehouse of enterprises to fulfill the plan of product sales under the new conditions. The given circumstance is especially significant for enterprises with serial and large-series production.

An important trend in the work of Minstankoprom to improve the management mechanism is development of brigade forms of organization and payment of labor. They are encompassed by 30.2 percent of the total number of workers at enterprises of the sector. The total number of brigades was increased by 9.3 percent and now exceeds 15,000 compared to the end of 1978.

Brigade forms of organization and payment of labor are used most extensively (with 40-50 percent of the workers) at the Kolomna and Kramatorsk Heavy Machine Building Plants, the Kiev Automatic Machine Tool Plant imeni A. M. Gor'ky, the Orenburg Machine Tool Building Plant, the Ul'yanovsk Plant Hidroapparatnaya and the Izhevsk Reducer Plant. However, not all enterprises of the sector are actively introducing brigade forms of organization of labor. This work is essentially not being carried out at the Leningrad Grinding Machine Plant, the Sterlitamak and Klin Machine Tool Building Plants and the Moscow Jig-Boring Machine Plant. The corresponding regulations and methodical instructions, specifically on calculation of production plans for brigades, organization of brigades and distribution of wages in them, have been issued by the ministry for development and expansion of these forms of organization of labor in the sector.

The plan of preparation and other normative and methodological documents in the order of implementing the decree of the CPSU Central Committee and the USSR Council of Ministers dated 12 July 1978 has been confirmed. Specifically, it is planned to work out proposals by the institutes of the sector on further expansion of brigade forms of organization of labor in the sector during the first quarter of 1980. Allocation of 1-2 enterprises to each VPO for carrying out the appropriate organizing and practical work on introduction of the brigade form of organization of labor in 1980 with payment by the final product as the main product has been provided.

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JPRS 74951

17 January 1980

USSR Report

INDUSTRIAL AFFAIRS

No. 526



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REPORT DOCUMENTATION PAGE		1. REPORT NO. JPRS 74951	2.	3. Recipient's Accession No.
4. Title and Subtitle USSR REPORT: INDUSTRIAL AFFAIRS, No. 526			5. Report Date 17 January 1980	
7. Author(s)			6.	
9. Performing Organization Name and Address Joint Publications Research Service 1000 North Glebe Road Arlington, Virginia 22201			8. Performing Organization Rept No.	
12. Sponsoring Organization Name and Address As above			10. Project/Task/Work Unit No.	
			11. Contract(C) or Grant(G) No. (C) (G)	
			13. Type of Report & Period Covered	
15. Supplementary Notes			14.	
16. Abstract (Limit: 200 words) This serial report contains information on the development and productivity of the automotive and tractor industry; electronic and precision equipment; metalworking equipment; construction equipment and building materials.				
17. Document Analysis a. Descriptors USSR Automotive Industry Agricultural Machinery Construction Construction Materials Construction Equipment Electronics Industry Metalworking Equipment Economics b. Identifiers/Open-Ended Terms c. COSATI Field/Group 2C, 5C, 13C, 13F, 13H, 13I, 13M				
18. Availability Statement Unlimited Availability Sold by NTIS Springfield, Virginia 22161			19. Security Class (This Report) UNCLASSIFIED	21. No. of Pages 62
			20. Security Class (This Page) UNCLASSIFIED	22. Price

17 January 1980

USSR REPORT
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CONSTRUCTION, CONSTRUCTION MACHINERY, AND BUILDING MATERIALS

PROBLEMS OF CONCRETE REINFORCEMENT DISCUSSED

Moscow SOTSIALISTICHESKAYA INDUSTRIYA in Russian 12 Sep 79 p 2

[Article by A. Alekseyev, Deputy Chairman, Committee for Corrosion and Prevention, VSNTS All-Union Council of Scientific and Technical Societies, Doctor of Technical Sciences: "Save Metal: A Tangible Economic Resource"]

[Text] The construction industry consumes some 20 million tons of metals annually, of which more than one-half is for concrete reinforcement. Savings of such reinforcement will be discussed here.

The combined weight of the annual output of reinforcement is about 12 million tons. The makers of reinforced concrete are familiar with primary metal-saving techniques producing immediate savings of, so to speak, "live" metal. For example rods of designed thickness should not be replaced with thicker rods. Stronger steel grades should be used. So-called lightweight concrete, which reduces the weight of structural elements and thus allows reducing their reinforcement, can be used. Unnecessary waste of metal can be stopped by improving the techniques of analysis and design.

There exist still other measures of this kind. They are very important. Not for nothing are the savings thus achieved called real savings.

But there also exist potential savings that can be derived by the economy in the future during the operation of equipment, buildings, and structures. This future gain is no abstraction--it is calculated by a scientifically substantiated and officially approved procedure. In practice, however, when assessing, say, the performance of scientific research institutes and their subdivisions, attention is still focused on real savings and not on the potential ones, since these are said to be not mandatory. For a reinforced concrete plant there is no incentive for such potential savings, since these supposedly do not exist in nature.

Yet the future ultimately always becomes the present. And so at present we have to consume the fruits of omissions committed in the past. In real terms this means the consequences--now no longer potential but real--that we suffer owing to metal losses (calculations show that 10 percent of the annual steel output is wasted by rust), premature capital repair, and stoppages of the equipment under repair.

The origin of all these losses is corrosion. Unless metal is properly protected against it, durable structures cannot be assured and the inter-repair operating periods cannot be prolonged.

Reinforced-concrete elements are advantageous because even in a fairly aggressive medium they can perform without special detriment to the "health" of metal and without additional protective measures such as periodic repainting. A humid medium (most natural waters, damp soil, moisture-saturated air in, among others, wet-process shops) is even favorable to cement concrete by causing it to gain in strength over the years.

But does this mean that a reinforced concrete element will be unconditionally durable in such media? No, unless the corresponding construction norms and standards are followed. Concrete does gain strength with time, but with time it may lose the ability to protect its reinforcement. Usually this is due to so-called carbonization. The carbon dioxide absorbed from air converts the lime present in concrete to calcium carbonate, the alkalinity of the moisture present in the pores decreases, and the steel reinforcement begins to be "eaten up" by corrosion. Sooner or later, it weakens the bonding between reinforcement and concrete, cracks appear in the protective layer, and the strength margin of the structural element sharply decreases.

Most often, this process cannot be halted. It is even less possible to restore the loadbearing ability of the reinforced concrete element. There is only one way out--replacement, and this has to be resorted to asbestos-cement-products plants, where the air on the premises has a high humidity. A similar situation exists in animal-husbandry buildings of reinforced concrete where the high air humidity combines with a high content of carbon dioxide and hydrogen sulfide.

Are our resulting losses great? According to the the Scientific Research Institute of Construction and Building Materials, Estonian SSR Gosstroy, in Estonia owing to the corrosion of reinforcement, the coverings of animal-husbandry buildings have to be replaced completely or partially as early as after 15 years of operation, whereas their service life could have been at least twice as long. Similar tentative calculations by specialists of the Economics Laboratory of the Scientific Research Institute of Concrete and Reinforced Concrete, USSR Gosstroy, show that the premature replacement of roofs in the molding shops of reinforced concrete products plants based on continuous-flow unit-head technology alone costs 2.3 million rubles annually, with the attendant metal loss amounting to 6,400 tons annually. It should be moreover considered that this loss is irreversible: you cannot extract reinforcement from the slabs, so that it is completely excluded from circulation and has to be directly dumped. Cement, rubble, sand, metal, and, lastly, the labor invested in the construction and assembling of the building--all this is prematurely forfeited.

As for the total resulting loss to the national economy, it is simply impossible to calculate at present. Builders are not interested in notoriety of this kind, and the USSR Central Office of Statistics is barely beginning to gather the pertinent data.

Is it possible to markedly reduce such losses? Yes. And this can be accomplished by simple technological measures. When fabricating structural components the reinforcement must be carefully fitted in its designed position. This in its turn will assure the required thickness of the protective layer of concrete all over the surface. Then it is only necessary to monitor the thickness of the concrete. Our calculations show that the satisfaction of these requirements will prolong from 10-12 years to 50 and more years the service life of precast ribbed-roof slabs for industrial buildings with weakly aggressive air on their premises.

In general, this is not the discovery of some new America. Perhaps the only new thing about all this is that standards developed and formulated so long ago are violated so often in favor of quantity rather than quality of output, and that at present special emphasis must be placed on the observance of technological discipline. It is necessary to mobilize not only the engineering services but also the public, and primarily citizen monitors, in order to strengthen that discipline.

I do not think there is any reason for procrastinating on this matter. Methods for fixing reinforcement in place are well known. Description of innovations such as plastic fixatives can be found in special literature. Certain plants of the Glavpriokistroy Main Oka River Region Construction Administration are introducing monitoring of the permeability of concrete. The Scientific Research Institute of Reinforced Concrete under the USSR Gosstroy could transmit the developed blueprints of equipment and procedural data to other plants on the basis of contractual agreements.

Possibilities for achieving substantial future savings in industrial and agricultural construction also exist in other directions. In particular, in the domain of design. Designers should make greater allowance for the nature and degree of aggressiveness of the atmosphere in which specific reinforced concrete elements will perform. Special elements have been developed for this purpose. All that is needed is that they should be more broadly used in designs and that, through close supervisions by the developers, builders would not replace them with standard elements.

The need for rigorous savings engenders the need to sharply elevate the culture of production and thus also to improve the upkeep of buildings. At many reinforced concrete elements plants inadequate sealing of the curing chambers is tolerated, heating and ventilating systems are defective, and pipe connections either leak steam or leak water. The elimination of such leaks is not only an aesthetic necessity and a requirement for real present-day savings of, say, fuel and power resources, but also represents potential savings. This is so because the air in such shops is more humid than expected, and moisture condenses on the surface of reinforced concrete. And we have already described what this leads to--premature aging of structural elements.

Production men always tell you that if only they would receive better incentives for such potential savings, they would introduce appropriate measures

more rapidly and successfully. It appears that enterprise economists should indeed consider more effective incentives for discrete improvements in the durability of structural elements. But I believe that this should be done without revising the existing construction laws. The existing procedure for payment of incentives offers adequate possibilities for this purpose. For the present what is lacking is, above all, responsibility for the observance of sometimes elementary standards. This is a matter of meting out punishments rather than granting incentives.

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CONSTRUCTION, CONSTRUCTION MACHINERY, AND BUILDING MATERIALS

SHORTCOMINGS OF PREFABRICATED UNIT CONSTRUCTION

Moscow STROITEL'NAYA GAZETA in Russian 3 Oct 79 pp 1-2

[Text of an interview with S. Kurits, doctor of Technical sciences, by STROITEL'NAYA GAZETA correspondent V. Drozdov: "A Qualified Admission--Or Why the Prefabricated Unit Construction Method Still Does Not Produce the Expected Benefits"]

[Text] The prefabricated-unit construction method serves to expedite project construction, not only in West Siberia at that.

Prefabricated units represent an industrial facility (boiler room, compressor room, or pump station) assembled from room-sized units, box-type units, and complete sets of components and elements. These units and packages arrive in assembled and tested form at the construction site. All that is needed is to place them on foundations, inter-connect them, and connect them to the utility lines. That is all. The facility is ready for operation.

Recently, representative conferences of experts expressing various opinions about ways of improving the effectiveness of this method have been convened. There is no consensus either in the official responses of ministries and institutes received by this newspaper concerning the SG column publications, hence the Editors resolve to continue the discussion. Today we publish the text of an interview with S. Kurits, doctor of technical sciences, by our correspondent V. Drozdov.

[Question] Sergey Ivanovich, as demonstrated by the replies received by the Editors, in particular from the chief engineer of the Capital Construction Administration of the Ministry of Gas Industry, B. Kalmykov, the cost of prefabricated unit construction often is higher than the cost of construction based on traditional designs, and its duration sometimes is prolonged. Why does this happen?

[Answer] Not infrequently automated prefabricated units, which I will henceforth refer to as APU, arrive at the construction site in incomplete form. Another problem has been the lack of standardization of their design solutions. In the last four years designers have repeatedly altered the design of the box-type units in which equipment is installed. This required revising

design documents and complicated assembling of complete unit packages owing to discrepancies between, e.g. the old partition panels and the new equipment layout. Other reasons have been the fabrication of units without their in-plant testing, and the insufficient substantiation of their cost. The cost of on-site assembling accounts for 50-60 percent of the total construction cost, although the best APU designs serve to reduce that cost to 5-10 percent.

[Question] It is thought that references to the high cost of prefabricated units will no longer be made if the customer, the sub-contractor and the equipment suppliers will all share in the attendant savings.

[Answer] The aforementioned causes of insufficient effectiveness of the method are only the surface causes--the root cause is different. Namely, it lies in shortcomings of the system for implementing this method in every stage--from the conception of the APU to its operation, modernization, and the exploitation of the latent physical potential and modernity of design. The inadequate level of APU design solutions, and the waste of manpower and material resources accompanying the introduction of this method occur because the customers, machine builders, designers, builders, and operators, all have different goals even though they all are entrained in the same production process.

There is a need for a purposive program for improving the system of the organizational management of prefabricated unit construction on the basis of the formation of two types of structural subdivisions. The first type would be a machine-building scientific-production association, which should be responsible for the development of experimental models of room units and packages adequate to the world scientific and technical level, as well as for the drafting of blueprints for their serial production. So far no such subdivision exists in the present infrastructure, but as for a prototype of the subdivision of another mixed type--the design-industrial-construction association--it already exists in the form of the Sibkomplektmontazh Siberian Complete Set Assembling Association of the Ministry of Petroleum and Gas Construction.

[Question] Judging from the replies received, all the responding readers agree that improvements in the structure of management should be based on a purposive program-oriented method, but there is no consensus as to who should direct the proposed program. The first group of respondents consider this to be a duty of the customer; the second group prefers entrusting these functions to some permanent agency of a commission type under the State Committee for Science and Technology or under USSR Gosplan. A third group prefers a scientific-production-construction association of one of the machine-building ministries. A fourth group of respondents names the USSR Gosstroy, and finally the fifth group names the construction ministries.

[Answer] I will analyze these replies by first dealing with those with which I do not agree. The second possibility is unsuitable, because the effective development of APU requires day-by-day practical work along with operative

coordination of the activities of the organizations and enterprises of many ministries. A commission cannot accomplish this, of course. The third opinion contains a grain of sound sense. But such a subdivision would hardly be capable of achieving suitable cooperation with the ministries to which the customer and the builders are subordinated, and it would lack adequate economic and other tools for this purpose. The fourth opinion is flawed because the USSR Gosstroy cannot be competent in problems of the technical policy of machine builders, although it undoubtedly can provide coordinative and methodological assistance in introducing the method. I do not agree with the fifth and last opinion, either.

[Question] Sergey Ivanovich, excuse my interrupting, but that is rather strange considering that it is precisely to builders that priority belongs in the development of the method.

[Answer] Yes, builders were the pioneers in this field. To them belong the credit and glory for exploring this method, which they commenced as long ago as 1965 during the construction of petroleum and gas fields in Tatariya. The new method has become particularly widely used in West Siberia, where builders of petroleum and gas industry facilities accomplished a veritable technological revolution. Within the shortest periods of time they established a base for prefabricated unit construction, built up petroleum and gas fields, and erected pump and compressor stations in that austere land of trackless marshes. This has enabled petroleum and gas workers to attain those high indexes of which the country is now justly proud.

Further exploring the potential of the new method, the collectives of the Ministry of Petroleum and Gas Construction organized the nation's first specialized plant for the production of complete prefabricated unit packages, on the basis of which was established the nation's first association for the production, delivery, and assembling of APU--the Sibkomplektmontazh Trust.

However, even within such an association, all the advantages of the new method still cannot be exploited. The association has to collect equipment from various local customers, which complicates the prompt and complete provision of APU. The practice of including the cost of APU in the volume of construction and installation operations (the plant's financial accounting is based on construction operations) also is to be deplored. This artificially raises the cost of construction. This is convenient to the subcontractor, but quite inconvenient to both the customer and the national economy as a whole. Other instances of discord in the goals of the various participants in the "idea-to-production" cycle could be cited.

[Question] But perhaps the rise in the cost of APU is not so bad considering that they shorten construction time. So to speak the end justifies the means. Right?

[Answer] You see, any progressive method can accelerate the construction of not only modern but obsolete facilities. That is for one thing. For

another, is that acceleration needed in cases in which users are not yet ready to receive the output produced by a completed facility and suppliers are not yet ready to provide it with raw materials? In such cases it makes no sense to expedite construction unless allowance is made for demand. It is the customer who is best qualified to answer this question. Consider also another factor: the prefabricated unit construction method is at its most effective when based on the most up-to-date solutions. Here again it is the customer who would show the greatest initiative. After all, seen from the systematic standpoint, the ultimate purpose of APU is to reduce the expenditures on the production of future output. And that is not only the customer's concern but also his duty.

Hence, as the saying goes, it is the customer who deals the cards. The more so considering that unlike, say, a commission, he can not only wish but also act, since he has the necessary resources. Hence it is he more than anyone else who can best coordinate the activities of all the participants in the "idea-to-production" cycle. That is why he should administer the scientific-production association, while the other type of association should be administered by the builders.

The prefabricated unit construction method is effective, and it should be administered on the basis of a purposive program-oriented principle--no one disputes this. But as for the machinery of that administration, details on which sometimes hinges success or failure, there is no consensus. In view of this, the Editors intend to continue the discussion of the problems of prefabricated unit construction, which is an important factor in expediting the completion of industrial construction projects.

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CSO: 1821

CONSTRUCTION, CONSTRUCTION MACHINERY, AND BUILDING MATERIALS

WORLD'S FIRST ROBOT BRICKLAYER BUILT

Moscow STROITEL'NAYA GAZETA in Russian 7 Oct 79 p 3

[Article by V. Maksimov, Naberezhnyye Chelny: "A Broad Range of Interests"]

[Text] That Mart'yanov is surely a man of few words. This time, too, Valentin Pavlovich did not depart from his customary laconic turn of speech. I heard on the telephone his level and calm voice:

"The test is scheduled for 10 a.m. tomorrow. Come!"

Mart'yanov is the chief of the experimental sector at the repair and maintenance administration. He is a graduate of the Novosibirsk Institute of Engineers of Railroad Transport. The Komsomol sent him to the Kama Automobile Plant. Here his institute dreams became reality: he found here a good production base and the possibility to "think broadly" and translate his thoughts into reality.

The robot was not designed by Mart'yanov. It is the brainchild of Petr Andreyevich Malov, docent at the Chair of the Technology of Construction Operations, Tashkent Polytechnical Institute, and of his son Yuriy Petrovich Malov, Senior Engineer of the Privolzhskstroy-avtomekhanizatsii Volga Region Construction and Automotive Mechanization Administration.

The most important and intricate components were built by the crews of the repair-instrumentmaking and press-frame sections of the Kama Automotive Plant, with some parts being constructed by the construction mechanization administration of the Kamgesenergostroy Kama Power Plant Construction Trust. But calculations, blueprints, and the entire machine in disassembled state still do not make a robot. Its assembling, testing, and preparation for work were entrusted to Valentin Pavlovich Mart'yanov and to the team of engineers and designers under his direction. This necessitated not months but years.

Mart'yanov carried out a series of research projects. This resulted in the development and construction of a transport mechanism of a fundamentally new design. Together with his colleagues, he had to examine six different versions before assuring the necessary reliability of the mechanism.

The tests of the robot bricklayer were performed on closed premises. I thought I would see a machine of the "Moonwalker" kind, but the silica-brick wall was laid by a three-meter high structure resembling a miniature tower crane.

Its steel hand-fingers picked up in a human-like manner heavy bricks and in a masterly way laid them in neat rows. Both the thickness of the layer of mortar and the verticality of the erected wall satisfied technical requirements. Those present at the robot's test were astonished by the speed of its bricklaying.

The robot replaces 15 skilled bricklayers. It is tended by two men: an operator and his assistant. It can lay 24 cubic meters of brick masonry per hour. What is also interesting is that the robot can be programmed to lay any kind of brick masonry, whether perforated bricks or the Popov-Orlyankin kind, or other. It can even erect highly intricate architectural structures, on using hollow tiles, and follow mosaic patterns. It has already begun to be taught all this.

Valentin Pavlovich attempts to make all his ideas the common property of all. He publishes in the journals MEKHAIZATSIIYA STROITEL' STVA and BEZOPASNOST' TRUDA V PROMYSHLENNOSTI. Recently Mart'yanov has completed preparing for publication the collection of articles "Opyt Ekspluatatsii Kranov na Stroitel'stve KamaZA" [Experience in Crane Operation in the Construction of the Kama Automobile Plant]. Experts evaluate that collection positively.

Mart'yanov is a passionate champion of innovations. Under his direction the argon welding of aluminum, titanium, and stainless steel has been introduced within the administration. Valentin Pavlovich has directed the work to construct a machine for leveling slopes and laying concrete. And the all-purpose automatic mortar feeder developed in the experimental sector has more than doubled the productivity of bricklayers.

The young engineer's inexhaustible energy can be envied. Since his arrival in Naberezhnyye Chelny he has succeeded in completing the University of Marxism-Leninism and receiving an honors degree. Mart'yanov's degree thesis is titled "The Brigade-Level Approach to the Construction of the Kama Automotive Giant." It is not accidental that the party committee at the Educational Methodological Council entrusted to him the direction of the "School of the Principles of Economics and Management of Production," which is attended by foremen and superintendents.

Mart'yanov knows how to live for the future. He is convinced that the world's first robot-erected building will arise in Naberezhnyye Chelny. Valentin Pavlovich even specifies the tentative date of that event: end of 1980 or the beginning of 1981.

CONSTRUCTION, CONSTRUCTION MACHINERY, AND BUILDING MATERIALS

UZBEK CONSTRUCTION INDUSTRY CRITICIZED

Moscow STROITEL'NAYA GAZETA in Russian 21 Nov 79 p 3

[Article by L. Yakubovich, chief, Technical Administration, Uzbek SSR Ministry of Building Materials, Tashkent: "Disturbances on the Line: What Impedes the Development of Prefabricated Structural Components in Uzbekistan"]

[Text] The plan for the development of the building materials industry in Uzbek SSR during the 10th Five-Year Plan provides not only for increasing output, but also for producing new effective materials and components. In the past years the collectives of the branch's enterprises have reached a more than 20 percent increase in output. The fabrication of more than 20 types of new products has been organized. This was accomplished chiefly through the modernization of equipment and a better utilization of production space.

The Angren Building Materials Combine, for example, has organized the production of colored decorative cement. Another enterprise in that city--the ceramics combine--mastered the production of colored porcelain plumbing fixtures and high-grade gypsum. The Akhangaran Cement Combine has completed the retooling of its slate production facilities on replacing the obsolete production lines with four more up-to-date SM-1155 lines, which served to completely mechanize slate production and eliminate the fabrication of VO-type small sheets. In lieu of these, we now supply the republic's construction sites with medium-corrugation SV-1750 large sheets. Structural components of this kind contribute to a marked rise in the labor productivity of builders. Now the use of scarce lumber for trusses has been markedly reduced. And at the same time the use of cement and asbestos to make the slate has been reduced at the combine. The savings yielded by each of these new production lines reach nearly 200,000 rubles.

As is known, there occur occasional shortages of acoustic decorative materials for installing suspended ceilings, as well as of sound-absorbing wall components. We succeeded in somewhat alleviating these shortages by organizing the corresponding production at the Akhangaran Cement Combine.

The modernization of production has been accomplished fairly rapidly and with a minimum expenditure of resources. But it is clear to everyone that the

steadily rising demand of capital construction for new effective materials and prefabricated components cannot be satisfied solely by retooling the existing enterprises. In many cases production has to be organized from the ground up. The program for the development of our branch did provide for building a number of large production facilities. Unfortunately, the heads of the construction agencies do not give priority to such projects, although they do not openly object to the need for a spearheading development of the construction industry base.

Serious criticism is deserved, in particular, by the heads of Trust No 14 of the republic's Ministry of Construction. This particular construction organization has been extremely slow in building a large compression-molded slate ship at the Kuvasay Cement Combine, even though that shop is indispensable to the production of lightweight panels and other prefabricated components. Last year this subcontractor utilized only 44 percent of the assigned funds, and during the first three quarters of this year it utilized little more than 60 percent. And yet this project has been completely provided with the equipment and blueprints it needs.

Another major construction organization--Trust No 6 of the Glavtashkentstroy Main Tashkent Construction Administration, is now in its third year of building a shop for the production of perlite sand and calcined lightweight material. By introducing the lightweight filler the enterprise could greatly reduce its expenditures on the production of heat-insulated structural components, and offsite packets of calcined lightweight material with a prefabricated vapor-tight layer could markedly increase the labor productivity of roofers. But the building of the shop proceeds with impermissible slowness. This year the heads of Trust No 6 moreover withdrew workmen from the construction site. Construction also is poorly organized at the Santeckhlit Plumbing Fixtures Plant in Akhangaran, the Il'ichevsk Brick Plant, and elsewhere.

This impedes the production of new types of structural components and building materials which have long been awaited by the builders themselves. The republic's Ministry of Building Materials had to put off indefinitely launching other construction projects. Last year alone the volume of uncompleted operations reached nearly six million rubles.

There exists yet another obstacle to the development of the production of new materials and structural components in the republic--the absence of a pilot production base within our ministry itself. Tens of specialized institutes are developing new products and technological processes and proposing various techniques of waste utilization. But the scientists lack the facilities for conducting the pertinent pilot-production trials.

STROITEL'NAYA GAZETA has already mentioned that a pilot-production line for low-temperature cement has been built at the Akhangaran Cement Combine. But the USSR Ministry of Building Materials decided to transfer it to the jurisdiction of the Galvzapadtsement Main Western Cement Administration, which is located in Moscow.

We consider such an approach to be unjustified. Administration of the line from such a great distance will produce undesirable consequences. Such a centralization is totally superfluous. Why should not that facility, like the plant itself, be subordinated to the republic's Ministry of Building Materials? Many of our scientists' projects concern refinements in the production of various kinds of cement on the basis of local raw materials and industrial wastes. The new line in Akhangaran could be used as the basis for developing a permanent experimental production base.

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CONSTRUCTION, CONSTRUCTION MACHINERY, AND BUILDING MATERIALS

ORGANIZATION OF HOUSING CONSTRUCTION DISCUSSED

Coordination of Housing Construction Needed

Moscow MOSKOVSKAYA PRAVDA in Russian 4 Oct 79 p 2

[Article by I. Gass, Deputy Chief of Mosstroy Moscow Construction Trust No 7: "To Improve the Performance of Construction Organizations the Capacities of the Production Links Should be Adjusted and the Disproportions Existing in This Branch Eliminated"]

[Text] In the economic organ of the Glavmosstroy Main Moscow Construction Administration a disproportion has arisen between the foundation-laying capacities and the possibilities of the organizations handling the construction of the above-ground parts of buildings. There also exist secondary disproportions- between the foundation-laying capacities proper and the utility installation capacities.

This is no new discovery. The trouble is that for years the situation has not been improving, but is rather getting worse. We have long forgotten the meaning of a completed "zero cycle." As a rule, utilities are installed during or even after the stage of finishing operations. All this produces substantial losses.

I will cite several examples. Last December the Trust released for occupancy Building No 64 in Otradnyy. But the installation of heat and electricity in the building continued until July, when exterior clean-up operations commenced. Owing to delays in installation of heating lines, Building No 50 in Tekstil'shtiki has not been completed despite its acceptance by the state commission.

A customer--the Institute of National Economy imeni G.V. Plekhanov--had allotted land for erecting the new building. The Mosfundamentstroy Moscow Foundation Laying Trust No 3 delayed for 3 months the installation of utility lines and the preparation of the area for construction, owing to lack of capacity. This means that the brigade of assemblers scheduled to arrive at the construction site will be unable to start normal operations, since the utility lines will be laid after the erection of the building is completed.

As of 1 January of this year customers have not settled accounts with the Glavmosstroy for more than 200 completed projects worth more than 100 million rubles. One reason for this situation is the imbalance between the capacities of the Glavmosstroy's production sectors.

It cannot be said that nothing has been done to expand the foundation-laying capacities. At one time, under the pressure of circumstances, three trusts were converted to zero-cycle construction. Now there are eight such trusts under the Glavmosstroy. In our opinion, to rectify the situation, an additional four should be thus converted, as a minimum. The proper proportion should be three general construction trusts to every foundation-laying trust.

We foresee objections. Some will say that the conversion of several general construction organizations to zero-cycle construction may adversely affect the pace of construction in the city. We do not believe this will happen. The trusts and DSKs [housing construction combines] at present lose so much time owing to the slow and substandard execution of preparatory operations that if these losses are eliminated by adding to the number of foundation-laying organizations, they will be able to erect with their own resources a much greater number of buildings and at a lower cost at that.

But this is not the only problem to be solved. Social problems also need to be solved. As is known, foundation-laying workers operate under much more difficult conditions than, say, building assemblers. But their pay is the same, and their paid vacations are not longer. It seems to us that a radical solution of the problem of foundation-laying personnel requires placing them in the same [wage] level category as the workers of mining and tunneling trusts, even if with a downward-adjusted index.

At one time, the question of allocating to foundation-laying workers all the equipment needed for excavation, hoisting, and transporting operations along with specialized motor transport vehicles had been discussed. The question remains topical to this day. One may object that this will adversely affect the machine-shift and ton-kilometer indicators. But all that machinery and equipment has been designed not for this purpose but for the purpose of erecting buildings.

Zero-cycle operations can be considered completed when the building assemblers find the construction site ready for their operations by being provided with heating systems, transformer substations, roads, and tracks for the installation of the tower crane.

Analysis of the reasons for delays in the standard periods of construction shows that one-half of all time lost is due to the construction of access and crane tracks. From our own experience we know that it is an effective measure to organize within each construction administration a small subdivision dealing with just one thing on a year-round basis--the preparation of the construction site in cooperation with the customer and its transfer to the foundation-laying workers. The subdivision then operates together with these workers to install regular and central heating points, to prepare accommodations for the assemblers' brigade, and to investigate the interconnection of utility lines.

In our opinion, it is also expedient to charge a manager having the rank of Deputy Chief of the Glavmosstroy with coordinating the operations to prepare the construction site for the building assemblers (from the moment of acceptance of site from the customer until it is readied for the installation of the tower crane). Such a manager would be endowed with considerable rights and responsibility, by analogy with what has been done as regards building the facilities for the 1980 Olympics.

If these suggestions are adopted, the principal disproportions will be eliminated.

Now let us consider other disproportions. The capacities of the plumbing (ventilating), electrical-installation (weak-current) organizations are smaller than needed for the erection of buildings and structures. This too is demonstrated by experience. Thus, a building on Gonsharskiy Passage was completed, and all the interior and exterior operations were completed, except in the site of the ventilation standpipe, owing to the lack of needed components.

A complete set of ventilating components was delivered to the construction of the administration building of the Goskomsel'khoztekhnika State Agricultural Equipment Trust. It remained lying on the site for more than a year because the installers did not come.

At present two specialized administrations under the Glavmosstroy handle ventilation operations. This is clearly insufficient. It is high time to organize a Mostroyventilyatsiya Moscow Ventilation Construction Trust under the Glavmosstroy. This question has long been discussed. The installation of ventilating facilities is perhaps one of the worst bottlenecks in the technological chain of the Glavmosstroy.

In recent years provisions have been made for an ever increasing volume of special operations on housing, industrial, and office-building construction projects. These operations are handled by the subdivisions of the USSR Ministry of Instrument-Making, Automation Facilities, and Control Systems. But a new single-section building requires 1,500 to 2,000 rubles worth of such operations and so the Ministry is not interested in performing them. Hence, many residential buildings stand for two or three years without automatic fire control systems. Subdivisions of the USSR Ministry of Special Installation and Construction Operations also handle certain operations on our sites under the patronage system, to the extent of not more than 100,000 rubles a year (0.3 percent of our program), but they do so under conditions that are extremely difficult to us.

It would be desirable for the Glavmosstroy to rid itself of its dependent status by setting up its own installation organization, perhaps with the assistance of planning agencies and ministries that might transfer to the Glavmosstroy's disposal the capacities extended to it by the abovementioned two ministries.

There exists a third disproportion--between the machinery pools of the general construction organizations and the finishing organizations. This problem is so complex that we cannot analyze it in detail. But it has to be mentioned. Buildings are often finished by hand without using even the available equipment, and this delays construction and its completion schedules and hence also worries all builders.

All these disproportions cause stoppages in the city's construction conveyor and, owing to their inherent logic, prompt builders to violate the technological regime, doctor reports, and commit other infractions. Moreover, they disrupt the unity of productive, economic and educational activities.

The decree of the party and state on "Improving the Planning and Intensifying the Effect of the Economic Mechanism on Increasing the Effectiveness of Production and Quality of Performance" points out that a major trend in improving all planning work is, in particular, the elimination of interbranch and intra-branch disproportions. Otherwise, ideal indicators may prove ineffective. Hence special attention should be paid to eliminating the existing disproportions.

Housing Construction in Tyumen' Criticized

Moscow STROITEL'NAYA GAZETA in Russian 25 Nov 79 p 3

[Article by V. Badov, STROITEL'NAYA GAZETA Correspondent Tyumen': "The Specificity of Tyumen'"]

[Text] Within some 10 years a constellation of modern cities has been created in the petroleum regions of West Siberia. Offsite housing construction has made strides toward the Polar Circle--to Urengoy and Nadym. Altogether, during the present five-year period alone, some four million sq m of dwelling area has been built in Tyumenskaya Oblast.

Is that much or little? From the viewpoint of the present-day scale of development of this enormously mineral-rich region it is little.

The country spares no resources to develop the oblast. At times the housing construction plans are doubled. For example, the Nizhnevartovskstroy Construction Trust was scheduled in 1976 to complete 110,000 sq m of dwelling area, and in 1978--220,000 sq m. Twice as much!

However, the Tyumen' housing builders are not coping with their increased tasks. This year 658,000 sq m of dwelling area is to be built in the oblast as a whole, but during the first nine months of the year only 466,000 sq m--a little more than one-fourth [sic] of the planned annual target--has been completed.

The Chief of the UKS [Capital Construction Administration] of the USSR Ministry of Petroleum, P. Alekseyev, cited a discouraging fact: in the first half of the year the Tyumen' petroleum workers did not receive a single

new housing project. In his opinion, the subcontractors--subdivisions of the USSR Ministry of Industrial Construction and Ministry of Petroleum and Gas Industry Construction--are falling back from their positions.

The targets assigned to the housing builders are based on the designed capacities for the production of precast reinforced concrete. But these capacities have been mastered only in half. For example, the Surgut DSK [Housing Construction Combine] last year produced only about 200,000 sq m instead of 380,000.

A major reason for this situation is the shortage of personnel and qualified specialists, which in its turn is due chiefly to the lag in housing construction.

There are reasons of another nature. The capacities of the housing construction base are not matched to the material and technical resources. Stoppages owing to lack of rubble, sand, and cement are usual in this oblast. The Surgut DSK last year did not operate for 168 days owing to lack of concrete aggregates. The Sibzhilstroy Association of the Ministry of Petroleum and Gas Industry Construction, which administers the Surgut DSK is now again experiencing a shortage of half a million cubic meters of rubble.

The severity of the local climate also cannot be disregarded. In winter construction operations cease for at least a month owing to frosts. Moreover, the residential building designs do not make allowance for the specific conditions of Tyumenskaya Oblast with its -45°C frosts. For example, buildings in the I-164 series of the LenZNIIEP Leningrad Scientific Research Institute of Experimental Design can essentially be created only during the relatively warm season of the year.

Complete sets of buildings are delivered to the oblast from other parts of the country. If the complexity of delivery is also considered, the lack of smoothness in construction operations, which depend on suppliers in Volograd, Omsk, Perm', Irkutsk, and Ufa, becomes obvious....

The chaos reigning in these deliveries has long been the talk of the town. Last year the USSR Ministry of Building Materials Industry, the USSR Ministry of Heavy Industry Construction, and the USSR Ministry of Construction were instructed to assure deliveries of 60,000 sq m of complete sets of prefabricated buildings to Tyumenskaya Oblast. Two ministries fulfilled this task only in part, while the USSR Ministry of Construction did not deliver anything at all. And now the plants of these ministries again are remiss with deliveries to Tyumen'.

Another painful problem is the chronic delays in blueprints and design documents. The Orel method [of continuous two-year planning] has not spread to Tyumen' land.

The housing problems in the Ob' River regions are not recent. Too much time was wasted on creating the oblast's own housing construction base. For example, all these years, the USSR Ministry of Industrial Construction

opened only one DSK in Tyumen', and that DSK has now moreover become bogged down in its own modernization. Last year the first stage of the KPD [large-panel plant for housing construction] in Nizhnevartovsk was not completed on schedule. The large construction industry base in Tobol'sk, designed for 140,000 sq m, is being built at an intolerably slow place.

The unsolved problems of development of this sub-branch in Tyumenskaya Oblast have more than once been considered by the central USSR departments. Last July the Minister of Industrial Construction A. Tokarev and the Minister of Petroleum and Gas Industry N. Mal'tsev signed a joint protocol concerning urgent steps for the construction of Nizhnevartovsk. But this did not result in any real improvement in the situation.

The USSR Ministry of Industrial Construction, for example, pledged itself to eliminate the manpower shortage in the Nizhnevartovskstroy Association. Three and one-half thousand workers were to be dispatched, but actually only 1,300 were received. The delivery of equipment for the start-up of the KPD plant was guaranteed for as long ago as last year, but it was received in Nizhnevartovsk only recently. Thus, to this day the Nizhnevartovskstroy Construction Trust still lacks its own construction industry base.

The USSR Ministry of Industrial Construction also promised unconditional fulfillment on schedule of deliveries of all the needed reinforced concrete products to Nizhnevartovsk, but this pledge was not kept.

As before, the Achinsk and Krasnoyarsk housing construction combines of the USSR Ministry of Heavy Industry Construction, the Tomsk Plant of the USSR Ministry of Industrial Construction, and the Asbest City Plant of the USSR Ministry of Building Materials Industry, are remiss in their deliveries. Essentially, no inventory in advance of the next year is available. Owing to the shortage of capacities the activation of purification facilities has been delayed.

As a result, the schedules for completion of housing are of purely nominal importance. The "urgent measures" have not been implemented.

The importance of this new major industrial region is difficult to overestimate. One after another, pipelines are being laid. The Ministry of Petroleum and Gas Industry carried out in Tyumenskaya Oblast 52 percent of its entire volume of operations for the branch. The rate of pipeline construction in Tyumenskaya Oblast is the fastest in the nation. But as for the rate of housing construction, it sharply lags behind.

Given such a disproportion between industrial and non-industrial construction, the burden is growing at a faster pace than are the possibilities for relieving it. The USSR Ministry of Petroleum and Gas Industry alone has since the beginning of the five-year period fallen short by 147 million rubles in making capital investments in the oblast.

A radical change in the situation requires strengthening the local housing construction base as soon as possible and organizing a smooth flow of deliveries of materials and equipment to non-industrial construction sites. Lastly, the question of having a single designer and a single ordering agency for every city in the oblast must be settled.

There also exists yet another realistic means of rapidly overcoming this dangerous disproportion: about a million square meters of dwelling area should be built in the Ob' River region with the resources of construction organizations from the more developed regions of this country, as has at one time been done in Tashkent and Naberezhnyye Chelny. At that time, such simultaneous assistance produced a considerable economic and social effect.

Of course, this would be an extraordinary measure, but one thinks that, along with the others, it is necessary. The people developing this tremendously rich region of the country should be provided with permanent and well-built housing.

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CONSTRUCTION, CONSTRUCTION MACHINERY, AND BUILDING MATERIALS

FULFILLMENT OF STATISTICS FOR HOUSING CONSTRUCTION

Moscow STROITEL'NAYA GAZETA in Russian 31 Oct 79 p 1

[Text] The third quarter was to play a special role in the struggle of housing builders to fulfill the year's program. Wherever smooth and efficient assembly-line-style operation had been achieved, its continuation was highly important. The laggards had to catch up and advance strenuously so as to maximally streamline operations and assure a favorable ending. Hence, the plan targets for the third quarters were rigorous for all, and particularly for the laggards.

How did the subcontractor organizations cope with their tasks?

The performance of the four all-Union construction ministries in the third quarter is alarming. The target for releasing housing for occupancy was fulfilled only 81 percent by the USSR Ministry of Industrial Construction and the USSR Ministry of Construction, and 84 percent by the USSR Ministry of Heavy Industry Construction. Consider also that these ministries did not complete all the projects on schedule during the first half of the year either, even though they then fulfilled the plan much better than in the third quarter. The USSR Ministry of Agricultural Construction, which had coped with the plan for the first half of the year, has also fallen behind during this quarter; it fulfilled the plan only 85 percent.

An even greater lag was recorded for the Ministry of Petroleum and Gas Industry Construction, many of whose construction projects are located in the region of the nation's new petroleum-bearing fields where the demand for housing is particularly high. Of the 1.5 million square meters of living area planned for this year, so far only 561,000 m² or 37 percent could be completed. The third-quarter target was fulfilled only 69 percent by the subdivisions of that ministry. Similar low indicators prevail for the USSR Ministry of the Power Industry.

However, the worsening of the quarterly indicators does not mean that the new housing stock has shrunk during the third quarter; the state commissions have even certified somewhat more housing than in both preceding quarters. The problem is that, year after year, in many cities and entire republics the first-quarter plans are set too low in order to prompt builders well in

advance to make haste and complete the plan "by assault" in the final quarter. Thus, all the Union construction ministries were scheduled to complete during the first half of the year only one-third of the housing planned for the entire year, with the remaining two-thirds to be completed during the second half of the year.

Analysis of the situation in housing construction in the republics reveals, as was to be expected, that the greatest third-quarter laggards are those who had wasted a lot of time during the first half of the year. The infractions of plan discipline have again been particularly significant in Kirgiziya, where the markedly lower first-semiannual plan had been fulfilled 49 percent and the third-quarter plan, only 37 percent (by the enterprises and organizations subordinate to the republic's council of ministers). The situation on housing construction sites in Turkmenia is highly alarming: only 58 percent of the housing scheduled for completion was actually completed during the third quarter.

The leader, so to speak, in first-semiannual performance was Belorussia, which overfulfilled its housing construction plan. But the seemingly impressive figures even then could not conceal a dismaying picture: the first-semiannual plan accounted for only one-fifth of the entire annual program. It is not surprising that in the third quarter this republic is among the greatest laggards.

The causes of irregularities in the smoothness of housing construction admittedly also include objective causes. This concerns the lack of coordination between the subcontractors' operational plans and the allocated material and technical resources, and the discrepancies between the targets and capacities of construction organizations. But it would be wrong to accept only this rationale. After all, all other conditions being more or less equal, some subdivisions perform well while others lag behind. This means that latent potential should be more insistently exploited and pace-setting experience should be more boldly emulated and introduced. The key to the solution of many problems in housing construction is the continuous-flow method of construction planning in a combination with cost-effective approach from the bottom up and socialist labor competition based on the "relay baton" principle. Wherever progressive methods are comprehensively applied, major advances are achieved. This is exemplified by the housing builders of Moscow, Orel, Ryazan, Vil'nyus, and some other cities, in which the year's program has so far been fulfilled about 70 percent.

Currently the most responsible and final stage of construction for this year has started on the construction sites. It is the duty of housing builders to repair omissions and complete the construction of all the housing scheduled for release for occupancy.

CONSTRUCTION, CONSTRUCTION MACHINERY, AND BUILDING MATERIALS

PERFORMANCE OF HOUSING CONSTRUCTION ENTERPRISES CRITICIZED

Moscow STROITEL'NAYA GAZETA in Russian 10 Oct 79 p 3

[Article by V. Petrushenko, chief technologist Giprograzhdanpromstroy State Institute for the Design and Planning of Industrial Housing Construction, and Ye. Dmitriyenko, correspondent, Press Center, UkrSSR Ministry of Industrial Construction: "They Operate Unreliably: New Housing Construction Enterprises Certified by State Commissions Despite Numerous Shortcomings"]

[Text] There exist altogether 65 large-panel plants for housing construction and DSKs [housing construction combines] in the Ukraine, and their aggregate capacity is about 6.5 million m² of living area annually. Actually, however, in 1978 they released for occupancy only 5.5 million m². About as much is scheduled for this year as well. Thus each year nearly one million m² of living area in capacity remains unutilized. In other words, each year workers are deprived of 20,000 apartments.

Another remarkable fact is that designed capacity is better utilized at large plants with stable personnel and good traditions. Such plants include the DSKs of Kiev, Khar'kov, Krivoy Rog, and Dnepropetrovsk. The more recently opened DSKs perform much worse.

These include the Poltava DSK. In its three years of existence it still has not reached its designed capacity of 120,000 m² of dwelling area. Last year the combine produced only one-third of that amount, and this year it plans to produce components for 60,000 m².

In the opinion of the Chief of the Poltava Industrial Construction Trust V. Pos'mashnyy and the DSK Chief E. Slutskiy, this is due to mistakes made by designers, are are blamed for shortening the bays of the main building by 18 m and for placing an assembly area outside the radius of action of the concrete laying machine, as well as for providing for only one crane in the bay for the production of exterior walls.

However, a special commission investigating on the spot the operations of the Poltava DSK rejected these arguments, finding that the shop production areas correspond with the designs, and that this is not the fault of that unfortunate

assembly area. Besides, what is the point of discussing additional production space when the available space is utilized so poorly? As for that single crane in the exterior wall bay, it proved insufficient owing to the inaction of other facilities.

The leading enterprises, and particularly the Belaya Tserkov' DSK which builds the same series of "111-94" buildings, fabricate as much as 14 cubic meters of reinforced-concrete components per sq m of production area, whereas at Poltava the corresponding figure is 10-12 cubic meters even after the designed capacity was reached. Truly, the old truth has a special bearing there: "If you do not wish to fulfill the task, look for the reason; if you wish to fulfill it, explore the possibilities."

The equipment for the Poltava DSK was built by nonspecialized enterprises of the Main Administration for the Mechanization of Industrialized Construction Operations of the republic's Ministry of Industrialized Construction. It required particularly thorough adjustments during the pre-opening period, but that was not attended to in time. No attention was focused either on adjusting the machinery in the process of actual fabrication of components. A great deal of that machinery is still inactive to this day. The brigade of highly skilled fitters that was to attend to this task had soon been retransferred.

This last fact makes sense considering that the personnel situation at the Combine is generally bad: people do not stay long at a poorly performing enterprise. Thus, early this year there was not a single specialist with the qualifications of a technologist in the fabrication of reinforced concrete products at this DSK.

The situation at Poltava also is duplicated at certain other DSKs. The Dneprodzerzhinsk DSK is now five years old, but so far it has achieved only two-thirds of its designed capacity. Its pusher system has broken down, and the frame and lock opening machines as well as the cross-transfer devices in the vibration area are malfunctioning. The personnel of the Voroshilovgrad and Ivano-Frankovsk plants have simply been marking time for the last three years without ever reaching their designed capacities. The equipment installed there also proved to be extremely unreliable.

Unfortunately, the quality of equipment at most newly opened enterprises leaves something to be desired. But at some DSKs everything is being done to improve technology and modernize equipment while at others this matter is treated in a slipshod manner or even nothing is being done about it. Hence the differences in performance.

Not a month passes without some new labor-saving innovation being introduced by innovators at the Khar'kov, Belaya Tserkov, and other leading DSKs. These DSK masters often improve equipment and organize its series production. At the Kiev DSK-4, for example, the resonance-vibration facilities had not performed reliably; so they were rebuilt and now the line performs more stably. In Odessa the frame and lock opening and closing machinery was successfully modernized so that now this operation is completely automatic.

The development of creative ideas is of definite assistance to improving the performance of the DSKs. If, however, the problem is to be solved in its entirety, steps should be taken above all to improve the series-produced equipment and tools for housing construction enterprises. This concerns the discrepancy between the possibilities of the enterprises of the Ministry of Construction and Road Machine Building and the needs of the housing construction enterprises. At present the latter enterprises have somehow to find that equipment and place orders for it at nonspecialized enterprises which cannot guarantee its quality. The problems of the pertinent equipment design also remain unsolved. Along with the Giprostrommash and the Giprostrom state institutes for the design of construction machinery and equipment, tens of departmental institutes and design bureaus are working to design the machinery.

Clearly, a more serious approach to the series production of equipment should be adopted. The responsibility of the manufacturing plants for the quality of their output should be tightened. They should guarantee a reliable performance of the equipment they make and rapidly eliminate any defects that may arise.

It is finally time to tighten the requirements for the certification of new capacities by the state commissions so that these capacities would be accepted only after all shortcomings are eliminated and the equipment is tested.

The prompt attainment of designed capacities by the DSKs is decisive not only to the recouplement of the tremendous investments made by the nation in the development of the KPD base but also to the fulfillment of housing construction targets. Hence everything should be done to cause the off-site housing construction plants to operate at full capacity.

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CONSTRUCTION, CONSTRUCTION MACHINERY, AND BUILDING MATERIALS

EXPEDITING HOUSING AND PRESCHOOL CONSTRUCTION URGED

Moscow STROITEL'NAYA GAZETA in Russian 5 Dec 79 p 2

[Article by P. Bad'in: "A Daily Concern: Expedite the Completion of Housing and Preschools"]

[Text] The Secretariate of the Central Committee of the Trade Union of Construction and Building Materials Industry Workers held a session on the topic of "The Unsatisfactory Performance of Economic and Trade Union Organizations in Fulfilling the 1979 Plan for the Construction of Housing and Preschools."

The topic was discussed with the participation of the USSR Deputy Minister of Agriculture G. Sukharev, the USSR Deputy Minister of Industrial Construction N. Ostrovskiy, the Chief of the Main Administration of Capital Construction of the USSR Ministry of Construction M. Faustov, and the secretaries of the Trade Union Central Committee I. Kolesnikov, R. Rodionov, V. Frolov, and others. The Chairman of the Trade Union Central Committee I. Lanshin spoke at the meeting.

Housing construction in this country proceeds on a broad scale. The amount of housing released for occupancy within less than one month is equal to that of five cities with a population of 100,000 each. Along with the planned increase in the quantity of housing construction, its quality is steadily improving. The layout and comfortability of apartments as well as the outer appearance of buildings have improved.

Success here largely hinges on further advances in industrialized construction techniques and design and cost-estimate planning, and on the propagation of advanced knowhow of the organization of labor and management in the branch. The personnel of many housing construction combines and trusts have achieved good results. The program for housing construction this year has been fulfilled much in advance of the schedule by the Moscow DSK-3 [Housing Construction Combine no 3]. The 10-month program has been fulfilled by the Elektrometallurgstroy Combine of the USSR Ministry of Heavy Industry Construction,

by the agricultural construction ministries of the Uzbek and Armenian SSR's by the Glavvladivostokstroy Main Vladivostok Construction Administration and the Chuvash Territorial Construction Administration of the USSR Ministry of Construction, the Checheno-Ingush Construction Administration and the Glavkavminkurortstroy Main Caucasus Spa Construction Administration of the USSR Ministry of Industrial Construction.

Special attention and support in housing construction are merited by the feats of labor and new work methods engendered by socialist labor competition and tested by practice, such as the Yaroslavl' housing construction agreement, the Orel continuous two-year planning system, and payment for completed projects without prior advance payments. All this enhances the effectiveness of capital investments and improves the quality and reduces the completion time of housing projects.

The new housing projects in Vladivostok, Yaroslavl', Riga, Tallin, and various other cities are being erected in a comprehensive and smooth manner. This has not, however, become the pattern and daily practice in present-day urban housing construction. As before, some 40 to 50 percent of all housing is released for occupancy in the fourth quarter of the year, chiefly in December at that.

This can be avoided by introducing the Orel "continuous" planning method. Unfortunately, this effective housing construction method is at present being introduced in only 58 cities of the RSFSR.

The smooth completion of housing is assisted by the introduction of the brigade-level cost accounting system level. The cost-accounting brigade of installers at the Saratov Housing Construction Combine, headed by V. Gorbachev, is considered to be one of the best in the branch. Gorbachev has been honored with the title of 1979 USSR State Prize Winner. His brigade completed a four-year program within two years and eight months while at the same time increasing its labor productivity 53 percent and consisting of only 30 persons instead of the planned 46.

E. Konstantinov's brigade at the Tula DSK also performs feats of labor. On the basis of brigade-level cost accounting, it has fulfilled its four-year task ahead of schedule. There exist quite a few such examples of honest labor by crews operating on the cost-accounting principle.

It is now planned to raise to 80 percent by the end of next year in housing and cultural-communal construction the operations performed by brigades operating on this principle. However, the performance of the principal subcontractor ministries in the first 10 months of this year indicates that certain collectives fall behind and fail to fulfill their tasks and socialist pledges. The plan for completion of housing construction by subcontractor organizations has been fulfilled only 75-80 percent.

It is alarming that in certain regions of Siberia, the Far East, and elsewhere housing and civic construction lags sharply behind industrial construction. This affects adversely the utilization of capital investments as a whole, the stability of personnel, and the subsequent attainment of designed capacities. The Glavtyumen'promstroy Main Tyumen' Industrial Construction Administration has long been underfulfilling its housing construction plan. The situation has not improved even now. The 10-month target for releasing housing for occupancy was not fulfilled even in half, and the fulfillment of the annual plan is being threatened.

Early this year the CPSU Central Committee and the USSR Council of Ministers issued a decree for the training and retention of construction personnel in production. Along with other allowances received, the workers of the branch were permitted to markedly expand the volume of housing construction for their own needs. In recent months certain subdivisions have accelerated the pace of construction of housing for their workers, and this has favorably affected the fulfillment of social-economic plans and of measures to implement the program for the completion of construction projects. Nevertheless, many main and territorial administrations as well as associations and trusts have underfulfilled the targets for completing the construction of their own housing. The situation in this respect is especially unfavorable at the Kuzbass and Alaty main construction administrations, and the Novgorod Territorial Construction Administration, which experience the greatest need for housing and for this reason are unable to complement the personnel of their subdivisions.

These days more than 400 housing construction combines and reinforced concrete products plants operating on the continuous-flow principle exist in the nation. Yet certain enterprises operate far below capacity, while others fabricate obsolete products.

Discussions at the meeting of the Trade Union Central Committee Secretariat revealed that this year, which is the International Year of the Child, the rate of the construction of preschool buildings has increased. The 10th Five-Year Plan provides for completing kindergartens and nurseries with a total of 2.5-2.8 million vacancies. Many collectives are coping with this task. The Main Volga Region Construction Trust, the Main North Caucasus Agricultural Construction Trust, and the Voronezh and Tambov territorial construction administrations are building preschools on schedule or ahead of schedule in the first 10 months of this year. But major shortcomings still have not been eliminated in this important field. As before, the plans for releasing preschool buildings for use are being underfulfilled.

Despite the great need for their own preschool buildings, the Volga Region, Pskov, and Kostroma main territorial construction administrations have not coped with their tasks, and the same can be said of the Main Bryansk Industrial Construction Administration, and of the agricultural construction ministries of Belorussia and the RSFSR.

A tremendous and still relatively unexploited latent potential is represented by the fabrication of components for the assembling of preschool buildings on the DSK assembly lines. The experience gained in the continuous-flow construction of cultural-communal facilities and preschools and creches in the Komi ASSR, Murmanskaya Oblast, and other areas, demonstrates the great advantages of using the housing construction combines to fabricate all the parts needed for comprehensive urban construction. This experience should be propagated as broadly as possible.

The Secretariate of the Trade Union Central Committee outlined concrete measures to improve the situation so as to apply a maximum of effort during the weeks still remaining before year end in order to assure the plan for the completion of construction projects. Not only previous omissions have to be repaired with the object of catching up, but also foundations for the future have to be laid.

1386

CSO: 1821

CONSTRUCTION, CONSTRUCTION MACHINERY, AND BUILDING MATERIALS

CONDITIONS NEEDED IN INTRODUCING THE ORLOVSKAYA UNINTERRUPTED PROCESS

Moscow STROITEL'NAYA GAZETA in Russian 12 Oct 79 p 3

[Article by No. Sugrobov, director of the Central Scientific Research Institute of Industrial Structures urban construction group: "Not in Parts But as a Whole; To Introduce Line Production in Construction for Two-Year Planning"]

[Text] Today the Orlovskaya "uninterrupted process" is being introduced in more than 120 cities, 60 of which are in the RSFSR and 32 in the Ukraine. In the Russian Federation an interdepartmental coordinating council in the RSFSR Gosstroy [State Construction] actively promotes this process.

Among the 120 cities it is possible to name quite a few where the concentration of resources at housing and cultural-service construction sites approaches 100 percent. Among these are Donetsk, Murmansk, Tula, Ryazan', Khabarovsk, Barnaul, Tambov, and Kaliningrad. The opinion was formed that at those places where this was successfully achieved the introduction of the new form for organizing construction did not encounter great difficulty. In reality it is exceedingly more difficult. A high level of concentrated resources is only one of the prerequisites for a transfer to uninterrupted planning and construction.

It is possible to name quite a few cities where the concentration of capital investments in the hands of a single client did not in and of itself achieve the expected effect. For example, in Bryansk, where the gorispolk UKS [Directorate of Capital Construction] has 80 percent of their resources at housing projects were put into operation during the first six months of the year. In Tula, where there was such a high concentration of capital investments, builders only managed to meet a third of the yearly program for turning over housing units between January and June. For the construction ministries mentioned only a third of the housing units erected in the country are being built according to the Orlovskaya method.

The spread of valuable knowledge is restrained most of all by discrepancies in planning tasks among clients and contractors. For example, for the current year the Volgograd gorispolk UKS planned to put into operation

housing units having a total area of 312,000 square meters but Glavnizhnevolzhskstroy [Main Nizhnevolzhsk Construction] accepted only 257,000 for the city. Another reason is the insufficient apportionment of resources for anticipatory work. For example this comprises only 60 percent of the norm for the Byelorussian Minpromstroy [Ministry of Industrial Construction]. Fragmentation in construction also gives rise to late preparation of construction sites and design documentation and providing sites with insufficient material technical resources which are not in conformity with the plans.

The above reasons are, to a well known degree, the result of insufficient development or the absence of long-range and five-year plans for the economic and social growth of cities as well as design technical documentation for the organization and complex execution of line production construction for projects designed for housing, cultural-service and communal use based on uninterrupted planning. Only 29 of the 110 cities examined have two-year calendar directive plans (schedules) for assimilating capital investments and for planning design-investigative work for housing and cultural-service projects.

This also speaks of the underestimation of the complex socialist competition among urban builders in a number of places. The facts testify that in those cities where collaboration agreements between architects and housing builders, competition on the principle of a "workers' relay race" and urban construction contracts are in force, they managed to better organize affairs, ensure the steady completion of the plan to put housing units into operation with a high quality structure, and to foster the sufficient amount of preparatory work in technical documentation. Such a situation was achieved in Donetsk, Zaporosh'ye, Dnepropetrovsk, Murmansk, Krivoy Rog, and Yaroslavl'.

Since the first of January of the current year, Gosgrazhdanstroy [State Civil Construction] implemented the "Instructions for the Organization and Complex Execution of Line Production Construction in Cities for Housing Units and Projects Designed for Cultural-Service and Communal Management Uses." When this normative document was issued a multitude of departmental instructions and statutes were repealed which have not only various titles and contents but also which propose various methods for introducing the "Uninterrupted process."

The value of these instructions (SN 508-78) consists most of all in the fact that for the first time it systematizes the complex of organizational, preparatory and construction work on the basis of new planning and management principles. The normative document defined the content of documentation which must consist of a complex consolidated graph schedule [KUSG] for the five-year and long-term period, and also of composite plans for the organization of construction (composite POSO for three years of the five year period and composite plans for production work at urban rayon buildings (composite PPR) for two years of the three-year period.

The necessity of developing documents in exactly this form and for such a period supports the practice of introducing the "uninterrupted process" in Orel. The fact of the matter is that the general plan and the designs for the detailed planning of housing ensembles do not contain information which directly applies to the organization of new or the reorganization of operating construction sites, but it is impossible to avoid it under the conditions of two-year planning.

Orel workers, the first in the country to complete the development of a directive schedule for line production construction for an entire city were able, by following it, to ensure the proper sequence for constructing projects, a uniform distribution of crews, the complexity and high quality of the structures and the preparation of the site and design-estimate documentation well in advance.

In Orel the general planner, with the participation of a single client and a single contractor, develops the directive schedules. Today systematic assistance may be rendered to the organizations which draw up the design technical documents by TsNIIP [Central Scientific Research Institute of Industrial Structures] for urban construction, NIIOUS [expansion unknown] under NISI [Moscow Civil Engineering Institute] imeni Kuybyshev and also the Ukrainian Gosstroy NIISP [Scientific Research Institute of Construction Production].

Introduction of the "uninterrupted process" demands intervention on the part of directive agencies. In particular the USSR Gosstroy must approve the statute concerning the services of a single client and a single contracting organization, develop directions which define the interrelationships of the gorispolk UKS with collaborating organizations (the procedure for transferring funds for materials and equipment, design documentation, labor plans and limits of salaries for technical supervision, and so on) as well as a single client's typical structure, staff and official rates of pay for services.

It is necessary for the USSR Gosplan and the USSR Bossnab to place the responsibility on a single contractor to provide housing and civil projects with materials and equipment excluding technological items, and at the same time free the gorispolk UKS from these functions.

And finally it is expedient to examine the question concerning the inclusion of indices when introducing the "uninterrupted process" in cities under socialist competition conditions which will undoubtedly accelerate putting the progressive method into practice.

9495

CSO: 1821

CONSTRUCTION, CONSTRUCTION MACHINERY, AND BUILDING MATERIALS

CARRYOVER CONSTRUCTION WORK INCREASING

Moscow STROITEL'NAYA GAZETA in Russian 21 Oct 79 p 2

[Article by I. Postnikov, chief of the Kuybyshevgidrostroy [Kuybyshev Hydroelectric Construction] planning section: "The Client is Applying Pressure"]

[Text] Since 1976 Kuybyshevgidrostroy's subdivisions began to transfer to the new management system. At present after three quarters of the total volume of work has been completed the client settles accounts with us according to the construction commodity output. This is for all housing units and projects designed for social-cultural use which were put into operation by us and more than half of the industrial structures.

After three years we saw with our own eyes the advisability of having annual production accounting. The duration of construction at a number of sites has been reduced, their costs have declined and profits are increasing.

However planning according to finished construction production has still not become the tool which could have made it possible to achieve a fundamental improvement in the work of Kuybyshevgidrostroy's subdivisions.

Today contract organizations have found themselves in such a position when the completion of tasks to turn over finished construction production does not depend on them. Thus, last year one of our largest trusts, Promstroy-2, completed 103 percent of the plan according to "production volume," yet the construction commodity output was only slightly more than half. They also managed to meet the quota for the increase in labor productivity. But no profits or funds for economic stimulation remained. However, this collective cannot be blamed for they were let down by the client--the Tol'yatti nitrogen plant management. As a result the trust turned out to be in the role of the guilty party but were guiltless.

Today a person could hardly be found in Kuybyshevgidrostroy who would be against planning and settling accounts for annual construction production. However, reorganization, in our deepest conviction, should begin with the

client through an increase in their economic responsibility for putting sites and complexes into operation on time. A paradox really exists. The same Tol'yatti nitrogen factory builds with credit from the USSR Stroybank [Construction Bank]. The start-up of production operations on time are systemically frustrated through the fault of the client but Kuybyshevgidrostroy pays for the increased percentage for using the credit. The irresponsibility of the client was overcome by us only after three quarters of 1979 and 298,000 rubles were gone.

Good conditions for plan formation of commodity construction took shape in 1980. We received the title list drafts, which coordinate the contractor's labor plan with the design, on time from the clients. It seemed as if everything was normal. But when we analyzed the contents of the title lists line by line the picture sharply changed. The clients are again pushing us for a further dispersion of labor forces and means. This will lead to an even greater growth in incompleted production for next year.

On 1 September 1979 the incompleted production at Kuybyshevgidrostroy comprised 285 million rubles. We need about three years to complete already constructed sites without beginning any new ones. At the same time the contents of the title list for the Volzhskiy automobile plant stipulate the apportionment of 200,000 rubles at the structure for expediting automobiles while the remaining cost of construction assembly work for this structure is 4,818,000 rubles, and for the hotel 300,000 rubles with the remaining cost at 6 million rubles. For the 12 sites included in the title list the remaining volume of construction-assembly work comprises 33.6 million rubles, yet for 1980 slightly more than 2 million or 6.2 percent is planned for completion.

In 1980 we are obligated to complete construction assembly work for aggregate ammonia No 6 at the Tol'yatti nitrogen plant and turn it over for the start-up of operations. Ten million rubles are needed for this but the client is providing only 1.1 million. At the same time the erection of new structures are included in the title list and financing for carry-over sites increased.

9495

CSO: 1821

CONSTRUCTION, CONSTRUCTION MAHCINERY, AND BUILDING MATERIALS

INSUFFICIENT LEGAL REGULATIONS FOR CONTRACTOR-SUBCONTRACTOR RELATIONS

Moscow SOTSIALISTICHESKAYA INDUSTRIYA in Russian 2 Sep 79 p 2

[Article by V. Gnidenko, Sibmetallurgmontazh trust administrator: "Crash Work...According to Schedule: To Improve the Management Mechanism"]

[Text] These lines are being written based on my impression of the Party Central Committee and USSR Council of Ministers' Decree, "Concerning an Improvement in Planning and an Intensification of the Economic Mechanism to Increase Production Efficiency and the Quality of Work." It is difficult to overestimate its importance and significance because, as this document notes, the economic structure reached such a level when the further improvement in economic management acquired special urgency.

I have in front of me the labor plan for our trust Sibmetallurgmontash [Siberian Metallurgical Assembly Trust]. The production of carbamide which is to begin during the current year at the Kemerovo production association Azot is noted in it. By the first of January of the current year, the construction preparedness of the project comprised 10 percent in all. According to all existing norms it is impossible to include the start of operations for this large scale and complicated means of production in the plan with such an amount of anticipatory work. Yet it was written in for us even though it is impossible to turn out carbamide this year even theoretically speaking, and not merely according to the norms.

This, unfortunately, is not a rare occurrence. The authors of similar plans hope that we, the assemblers, by mobilizing a maximum amount of our work force and concentrating a large number of people and technicians at the construction site, will be able to decrease the time it takes to complete the work relative to the norms. More often than not this happens. But sometimes a concentration of the work force does not help. Let us assume for a minute that in order to accelerate the work we instructed several men to simultaneously drive in a single nail. They will only interfere with each other. And the work will not go any faster. The same thing happens, regardless of the technology of the work, when two to three times as many people are concentrated at a site to complete the work at any cost.

In the first paragraph of the CPSU Central Committee and USSR Council of Ministers' Decree it speaks of measures for increasing the level of planned work. And this is not by accident, for the quality of planning most of all determines the level of management activities. And today if many construction and assembly organizations cannot be commended for their labor achievements it is because their lag was frequently already predetermined at the plan formation stage. This regularity was looked into especially carefully among our assembly organizations.

Here is how plans for subcontractor organizations are formed in practice. The general contractor for the trust gives us the labor framework. Included in this framework are not only those items which will be included in the plan but also everything which the general contracting organization would like us to complete. And here is what this leads to. The plan for the construction sites at the Kemerovo production association Azot was not covered by the current year's financing. Our Sibmetallurgmontazh Trust had to complete more than one and a half million rubles worth of work for the year at one of them--the Ammiak-450 works. We sent the appropriate work force there and assimilated approximately 400,000 rubles but it turned out that the client refused to finance the work. In summary the completed work proved to be unplanned. It may be excepted by right since we do not have the right to work at sites which are not provided with financing.

In light of what has been stated the position of the party and government decree seems to us very important, in agreement with which the standard five-year plan for capital construction will be approved by balancing material resources and technological and power equipment against labor and financial resources and also against construction-assembly organizations' capacities. The pledge of smoothly operating labor at all sites and especially at starting sites is included in this.

The legislative basis on which the interrelationships between the general contractor and the subcontractor must be formed plays no small part in accelerating the initial operation of production capacities and in increasing the effectiveness of capital investments. This is one of the more acute problems for assembly organizations today because there are no legislative documents which make it possible to effectively influence the general contractor. We worked with Glavkuzbasstroy's [Main Kuznetsk Basin Construction] subdivisions for a long time. Many of them, as a rule, fulfill the plan with their own work forces. But while doing this they concern themselves very little with establishing a work front for assembly organizations on time. The time remaining for completing the total assembly work is sometimes three to four times less than the norm.

And the source of this, to say the least, abnormal situation has its roots in the practice of concluding contracts. As a rule the USSR Ministry of the Heavy Construction Industry [Ministry of the Heavy Construction Industry] general contracting organizations do not indicate the time period for turning over a

working front and providing materials and equipment in these contracts. Usually the contract formula looks like this: construction readiness between "January and December" and deliveries of supplies according to the "client's schedule." If one considers that we receive the contract late in comparison with the established time period and that the bank begins financing only after it has been signed, the subcontractors find themselves in a hopeless situation. We must either sign that contract which was sent to us or undertake a useless rewriting of it with the general contractor and their higher organizations. It usually ends up that we sign the contract anyway with the wording which was used in the copy we received because one cannot work without financing.

Such a practice is extremely detrimental to the subcontractor. During the time period between "January and December" the subcontractor cannot turn to the State Arbitrator until the last day and on the first of January the contract is no longer legally binding. Thus a general contracting organization has the possibility of acting at his own discretion with complete impunity at the construction site without considering the demands and needs of subcontractors in a number of instances. One example stands out among the many examples which support this position. During the current year the start of kaprolaktam [raw material used in the production of synthetic fiber] production is planned for the same Azot production association. In order to complete assembly work at the site 150 km of pipe are still needed. No one is concerned about issuing them in the time period (in February or March) which is necessary due to the technology of the job. And we must actually rework these pipes into assembled units beforehand and then mount them into place. Four months remain before the start of operations, but there are no pipes. And a specific guilty party cannot be found because the contract was cleverly drawn up.

The conclusion suggests itself that the interrelationships between the general contracting and subcontracting organizations cannot depend on someone's good or evil intentions and on the willingness or the unwillingness to take upon oneself specific obligations. They must be clearly and strictly regulated by legislative documents. A grid schedule, whose role must be increased, could serve to regulate purely production relations. It makes it possible to plan the beginning and end of all operations at the construction site with maximum accuracy--from the zero cycle or work to the turnover of the site for operations. A grid schedule indicates not only that sector of the construction job where a breakdown has occurred but also the party guilty of the breakdown. Under these conditions collective irresponsibility, with which we sometimes come in contact, is eliminated.

Experience has shown that the practice of drawing up the arrangements (these make their appearance after the arrival of the ministers or deputy ministers) which indicate the volume of work and time necessary to complete it, the number of people and machinery necessary, deliveries of materials and equipment, does not justify itself. Not measures, but a precise program which may be produced only by well thought out, long-term, current and operative planning is needed.

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JPRS 75140

14 February 1980

USSR Report

INDUSTRIAL AFFAIRS

No. 529



FOREIGN BROADCAST INFORMATION SERVICE

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REPORT DOCUMENTATION PAGE		1. REPORT NO. JPRS 75140	2.	3. Recipient's Accession No.
4. Title and Subtitle USSR REPORT: INDUSTRIAL AFFAIRS, No. 529		5. Report Date 14 February 1980		
7. Author(s)		8. Performing Organization Report No.		
9. Performing Organization Name and Address Joint Publications Research Service 1000 North Glebe Road Arlington, Virginia 22201		10. Project/Task/Work Unit No.		
		11. Contract(C) or Grant(G) No. (C) (G)		
12. Sponsoring Organization Name and Address As above		13. Type of Report & Period Covered		
		14.		
15. Supplementary Notes				
16. Abstract (Limit: 200 words) This serial report contains information on the development and productivity of the automotive and tractor industry; electronic and precision equipment; metalworking equipment; construction equipment and building materials.				
17. Document Analysis a. Descriptors USSR Automotive Industry Agricultural Machinery Construction Construction Materials Construction Equipment Electronics Industry Metalworking Equipment Economics b. Identifiers/Open Ended Terms c. COSATI Field/Group 2C, 5C, 13C, 13F, 13H, 13I, 13M				
18. Availability Statement Unlimited Availability Sold by NTIS Springfield, Virginia 22161		19. Security Class (This Report) UNCLASSIFIED		21. No. of Pages 58
		20. Security Class (This Page) UNCLASSIFIED		22. Price

14 February 1980

USSR REPORT
INDUSTRIAL AFFAIRS

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CONSTRUCTION, CONSTRUCTION MACHINERY, AND BUILDING MATERIALS

NUMEROUS, VARIED PROBLEMS IN BELORUSSIAN CONSTRUCTION WORK REVIEWED

Problems at Start-Up

Minsk SOVETSKAYA BELORUSSIYA in Russian 11 Nov 79 pp 1, 3

[Article by Yu. B. Kolokolov, secretary of the Central Committee of the Communist Party of Belorussia: "In the Concluding Stage"]

[Text] Capital construction is on the forward edge of the struggle to increase the production of output, raise production efficiency, and improve the housing and cultural-domestic conditions of the people. This gives construction workers large and important tasks to insure timely introduction of production capacities and installations and social projects and to step up the redesigning and technical re-equipping of existing enterprises.

Republic construction workers have made definite progress in carrying out the decisions of the 25th CPSU Congress and the 28th Congress of the Communist Party of Belorussia. Since the beginning of the 10th Five-Year Plan fixed capital worth 13 billion rubles has been put into operation, about 15 billion rubles of capital investment has been incorporated, and a large amount of construction and installation work has been performed. About 100 large enterprises have gone on line, among them the Grodno Synthetic Fiber Plant, the Slonim Worsted Goods and Spinning Plant, the Zhlobin Synthetic Fur Plant, the Novopolotsk Protein-Vitamin Concentrate Plant, the Molodechno Light Metal Design Element Plant, and Minsk Central Heat and Electric Power Plant No 4. Capacities have been significantly enlarged at the Khimvolokno [Chemical Fiber], Azot [Nitrogen], Beloruskaliy [Belorussian Potassium], Bobruyskshina [Bobruysk Tire], BelavtoMAZ [Belorussian Automotive], and Gomsel'mash [Gomel' Agricultural Machinery] associations, the Novopolotsk and Mozyr' oil refineries, and the Lukoml' State Regional Power Plant. A large program of agricultural, housing, municipal, and cultural-domestic construction has been carried out.

These achievements are based on the heroic, creative labor of the collectives of construction workers, installers, planners, and purchaser

enterprises. Among the leaders in socialist competition for successful fulfillment of the assignments of the 1979 plan and the five-year plan as a whole we can mention the collectives of construction trusts Nos 3 and 17 of Lavsanstroy, the Minsk Production Association of Industrial Home-Building, the Brest Home-Building Combine of the Belorussian SSR Ministry of Industrial Construction, Vitebsksel'stroy [Vitebsk Rural Construction] and Slutsksel'stroy [Slutsk Rural Construction] of the Belorussian SSR Ministry of Agriculture, the Promtekhmontazh [Industrial Technical Installation] Association and the Belteploizolyatsiya [Belorussian Heat Insulation] and Belprommaladka [Belorussian Industrial Adjustment] trusts of the Belorussian SSR Ministry of Installation and Special Construction Work, the Brestskaya Oblast Association of Interkolkhoz Construction Organizations, and others. These collectives are successfully handling their plan assignments, increased capacities and work volumes year after year, and improved technical-economic indexes.

The job of party, Soviet, and economic bodies in the remainder of the year is to mobilize, making broad use of progressive know-how, all the collectives of construction workers, installers, purchaser enterprises, and transportation and supply organizations to make maximum use of existing reserves and potential and to insure introduction of all installations and capacities on this basis. However, the work results for the first nine months of this year indicate that the party organizations and labor collectives of construction workers have not been able to meet the challenges given to them. They have not completely fulfilled established assignments and the socialist obligations they assumed. In the first nine months more than 49 million rubles of construction and installation work less than the plan was completed. A total area of 172,000 square meters of housing, schools for 7,200 students, preschool institutions for 4,300 children, clinics with capacities of 2,580 visits, vocational-technical schools for 3,800 students, and other projects were not turned over for use. Particularly poor work this year has been done by trusts Nos 6, 9, 13, and 21 of the Belorussian SSR Ministry of Industrial Construction, Minsksel'stroy [Minsk Rural Construction], Krichevsel'stroy [Krichev Rural Construction], and the Grodnosel'stroy [Grodno Rural Construction] Administration of the Belorussian SSR Ministry of Rural Construction, the Grodneskaya Oblast Association of Interkolkhoz Construction Organizations, the Beldorstroy [Belorussian Road Construction] Trust of the USSR Ministry of Transport Construction, and the Belenergostroy [Belorussian Energy Construction] Trust of the USSR Ministry of Power and Electrification. The leaders and party organizations of these and numerous other collectives were not able to properly direct the efforts of employees and the material-technical resources put at their disposal to unconditional fulfillment of the challenges set before us.

In the time remaining until the end of the year the republic must put into operation more than 1 million square meters of total housing area, schools for 9,000 students, preschool institutions for 17,000 children,

hospitals with 1,180 beds, clinics with a capacity of 6,000 visits, clubs and houses of culture with 13,350 places, vocational-technical schools for 5,120 students, animal husbandry buildings for keeping 37,000 head of cattle and 58,800 hogs, and repair workshops with capacities of 5,130 standard repair jobs.

Among the projects planned for launching in this year it is essential that the following be turned over for operation: capacities to produce 1,800 standard units of potassium fertilizer at Soligorsk Potassium Plant No 4, capacities for 4,500 tons of sulphuric acid at the Gomel' Chemical Plant, capacities to produce 60,000 tons of dimethyl-terephthalate and 35,000 tons of polyester fiber at the Mogilev Khimvolokno Association, the Mogilev City Dairy Plant, the Berezino Creamery, and the Plisskiy Flax Plant.

To conclude the year successfully work will have to be done with maximum efficiency and a high level of organization and responsibility, mobilizing all reserves and drawing in additional forces and means.

The Central Committee of the Belorussian Communist Party and the republic government, seriously worried by the lag in fulfillment of plans for capital construction, adopted a decree in October of this year which labeled the work of contracting ministries and departments to fulfill plans for introduction of housing and cultural-domestic facilities unsatisfactory. They pointed out the failure of the managers of construction and installation organizations and purchaser enterprises as well as some party committees and executive committees of oblasts, city, and rayon Soviets of People's Deputies to realize the full importance of these matters in the cause of improving the living conditions of working people and stabilizing collectives.

The construction ministries and departments, party oblast, city, and rayon committees, oblast executive committees, and the Minsk City Executive Committee have been instructed to make a careful analysis of the situation at start-up projects and establish a precise schedule of job performance for each of them to guarantee their introduction. The purchaser ministries, departments, enterprises, and organizations are to immediately resolve all questions of supplying missing equipment and materials to priority projects, and the Belorussian SSR Ministry of Motor Vehicle Transportation and the Administration of the Belorussian Railroad are to guarantee priority performance of their shipping orders.

To make up the shortages of certain types of materials and design elements the republic ministries of the building materials industry, timber and wood processing industry, and local industry have been ordered to produce and supply the necessary materials and articles beyond their plans. It has been recognized as necessary to assign more than 15,000 additional workers and specialists to the construction sites from enterprises, organizations, kolkhozes, and sovkhoses before the end of the year.

However, local party, Soviet, and economic agencies are not moving fast enough to speed up construction of priority projects. Manpower is still short at many sites, and work is carried on with just one shift. Brigades, machines, and equipment stand idle and labor and production discipline is low.

In November of this year priority construction projects of the Belorussian Automotive Plant were short 250 tons of metal and 250 square meters of built-in furniture. Of the 340 persons to be sent from enterprises and farms in Smolevichskiy Rayon to the construction site according to the October resolution of the Minskaya Oblast committee of the Belorussian Communist Party and the oblast executive committee, not one has arrived. This is not an isolated example. Suffice it to say that just 2,800 of the planned 8,300 persons arrived at organizations of the Belorussian SSR Ministry of Industrial Construction in October. This work is going poorly in Minsk and in Grodneskaya and Vitebskaya oblasts, where the percentages of workers and specialists sent to construction sites in October of this year were 18, 33, and 44 percent of the required number.

Organizations of Belorussian SSR Goskomsel'khoztekhnika are far behind with installation work at priority construction sites in agriculture. Many of them still have not been supplied with equipment and cable.

All these things have a negative effect on the rate of work and threaten violation of scheduled times for launching the project. There are already about 200 such projects for just the principal contracting ministries and departments of the republic.

The leaders of the construction ministries, Belorussian SSR Gossnab, the purchaser ministries, departments, and enterprises, and local party and Soviet agencies must immediately analyze the situation at each construction site by itself and take concrete steps to catch up and guarantee that they are launched on schedule.

Oblast, city, and rayon party committees and oblast, city, and rayon executive committees must hold those responsible for mismanagement, violations of state discipline, and inefficiency in performing their functions and obligations more strictly accountable.

An important facet in the current stage is the organization of labor at construction sites, effective use of machinery and mechanisms, supplying brigades with small power equipment and standard tool kits, and thereby insuring every possible increase in labor productivity. We must admit that by no means has everything possible in this direction been done.

The party committees, Soviets of People's Deputies, and primary party and trade union organizations must keep constant, strict watch on the manufacture of machinery in construction and provide a strict party

assessment of cases of inactivity and red tape in resolving the questions of re-equipping enterprises, providing them with necessary tools, and establishing proper conditions for highly productive labor.

The Belorussian SSR Ministry of the Building Materials Industry, and the oblast party and executive committees in Vitebskaya, Mogilevskaya, and Gomel'skaya oblasts must act decisively and quickly to straighten things out at the Krichev Cement and Slate Combine, the Polotsk Building Materials Combine, the Gomel'stroymaterialy [Gomel' Building Materials] Production Association, and the Petrikov Keramzit Gravel Plant and to give them effective assistance. The party organizations and plant trade union committees must step up political indoctrination in the local areas and make competition for fulfillment of shift output norms and high product quality more effective.

The questions of material-technical supply to construction demand fixed attention. Equipment and material supply agencies frequently deliver incomplete sets of construction elements and articles and metal pieces and pipe of the wrong sizes and shapes to construction sites. As a result, some sites are overstocked with materials and design elements which are in short supply at other projects. Despite the severe shortage of cement this year, on 1 October organizations of the republic Ministry of Industrial Construction had 99,000 cubic meters of prefabricated reinforced concrete beyond the norm and organizations of the Belorussian SSR Ministry of Rural Construction had 17,000 cubic meters extra.

Party committees and people's control agencies should intensify the struggle against mismanagement and waste, not leaving a single case of uneconomical, irrational use of building materials undiscovered.

Republic transportation organizations owe a great debt to the construction workers. As of the start of November of this year significant amounts of freight had not been shipped to construction sites: 20,000 cubic meters of prefabricated reinforced concrete, 5.3 million bricks, 230,000 cubic meters of crushed rock, 72,400 tons of lumber, and numerous other items.

The leaders of the Administration of the Belorussian Railroad, the Belorussian SSR Ministry of Motor Vehicle Transportation, and the other transportation and construction organizations must fundamentally improve work related to the delivery of materials and design elements and articles to construction sites, organizing work in two and three shifts for this purpose. Together with party, trade union, and Komsomol organizations they must organize work everywhere to reduce loading and unloading time on the basis of precise, coordinated schedules and wage an implacable struggle against poor management.

Major demands are being made of the direct organizers of production in the local areas. Labor and production discipline is still low at many construction sites and advanced forms and methods of labor organization are being introduced too slowly.

The brigade and section contract following the technique of Hero of Socialist Labor N. A. Zlobin is, of course, very important in the struggle to raise labor productivity and quality and further economy and thrift.

However, this method has not found proper application at construction sites of the republic. During the current year scarcely more than half of the brigades in the primary contracting organizations were following it. To some degree this reflected the force of inertia and a desire to avoid taking on an additional load involving engineering preparations and improving material-technical supply to construction sites.

The principle of the "worker relay" is being introduced into competition too slowly. This technique envisions turning over the work front to associated workers at the proper time, exact fulfillment of start-up schedules, and stepped-up assignments. Its main principle, "From mutual complaints to mutual help and support" insures coordinated actions by all participants in the construction process. Party and trade union organizations and economic managers must introduce progressive methods of labor and production organization everywhere, bearing in mind at all times that only smooth work by all elements will insure timely launching of projects.

The situation that has developed in the concluding stage of the year demands immediate involvement of all existing reserves and capacities and additional enlistment of forces and means for republic construction sites.

Successful fulfillment of plan assignments and socialist obligations depends largely on the vanguard role of communists.

At the 25th Party Congress Comrade L. I. Brezhnev pointed out that "the primary party organizations today are expected to be more energetic in influencing the rise in production efficiency and acceleration of scientific-technical progress. They must be constantly concerned to establish an atmosphere of harmonious work and creative searching in every collective, providing indoctrination for the workers and improving their working and living conditions."

We can only emerge with honor from the extremely difficult situation regarding launching of projects in different economic sectors this year if party bodies, without delaying a single day, take the lead and carry out a determined offensive along the entire front of construction work in all its aspects. This is our principal challenge, and it is a question of our honor. We absolutely must meet this challenge.

Problems with Mechanization

Minsk SOVETSKAYA BELORUSSIYA in Russian 16 Nov 79 p 2

[Article by N. Ivanov: "Is the Burden Too Much?"]

[Text] Heavy, unproductive manual labor draws off many people, uses up time, and does not promote technical progress. That is why the resolutions of the 25th CPSU Congress and party and government decrees on improving planning and the economic mechanism stress that a sharp reduction in the proportion of manual labor is becoming an essential condition for economic growth and solving important social problems.

How do things stand in this respect in the Belorussian SSR Ministry of Rural Construction? Let us review its capabilities and actual work.

Since the beginning of the Ninth Five-Year Plan the active part of fixed productive capital in the sector has increased 2.2 times and now has a value of over 48 million rubles. During this time the volume of construction of large animal husbandry and poultry complexes, enterprises to process agricultural output, and housing, public buildings, and cultural-domestic facilities in prefabricated forms has increased substantially. Needless to say, the change in the structure of jobs has also caused major qualitative changes in equipment. Suffice it to say that since 1971 the average unit capacity of excavators has increased 56 percent, jib cranes 54 percent, and power cranes 19 percent. The mobile mechanized columns and trusts have received hydraulic drive machines which offer excellent potential for full mechanization of labor-intensive processes.

The machine-availability factor is now 18.7 percent as the result of technical re-equipping of rural contracting organizations. They have 1,715 rubles worth of machinery per worker (this is how the machine-availability factor is measured). These are high indexes.

But they are not a goal in themselves. Machines are not built to be "furniture" but rather to release human beings from heavy, uncreative manual labor. According to measures developed to carry out the decisions of the 25th CPSU Congress, during the 10th Five-Year Plan the ministry is to reduce the number of performers by 2,284 persons and raise labor productivity by 9.3 percent through just one factor, "mechanization of construction." In the last three years more than two-thirds of this goal has been accomplished. This means that the sector is actually somewhat ahead of schedule in this respect.

Rural construction workers have now turned over 98.3 percent of earthmoving work, 89.7 percent of concrete work, 97.1 percent of loading and unloading inert loads, and 99.1 percent of lumber,

metal, and construction element loading and unloading operations to machinery.

In short, some progress has been made. The results are not good enough to cause elation, but neither are they bad enough to cause us to despair. I will try to explain the reason for this two-sided assessment and the feeling of dissatisfaction associated with it.

A high level of mechanization has certainly been achieved in some sectors. It is a high level, but not complete mechanization. There is just a little more to the final barrier. But this "little more" represents very concrete quantities that run into four-six digit numbers. For example, the 1.7 percent of earth moving work that is not yet done by excavators, bulldozers, and other machinery amounts to 540,000 cubic meters. It is not difficult to figure how many people this takes, knowing that the average output of a person armed with a pick and a shovel is not more than 2,000 cubic meters a year.

But we know that there are also many sectors where machines perform only certain operations, most often secondary ones. We are referring to masonry, plastering, and painting.

This is indeed a paradox. The machine-availability factor is growing rapidly, but inputs of human muscular energy are decreasing very slowly.

In part the measures are to blame here, because they distort the situation. Suppose that the cost of certain types of machinery has risen; this creates the appearance that all is well with the index of its availability to labor. But the main reason is that the rate of growth in construction and installation work significantly exceeds the rate at which contracting organizations are supplied with automation and mechanization equipment. Knowledgeable people say that this is a natural process. But in what proportions, and to what extent? The question remains open.

It is especially alarming that the stock of machines that are most fully suitable for the specific character of dispersed rural construction is decreasing. As the experience of the Vitebsk and Molodechno trusts demonstrates, labor productivity in brigades engaged in setting up the zero cycle rises 17-20 percent just by using excavators with 0.25 cubic meter scoop capacity and bulldozers based on the T-74 and T-75. But for some reason these machines have begun to become scarce. Suffice it to say that at the start of 1971 the Belorussian SSR Ministry of Rural Construction had 380 tractors with mounted earth-moving equipment (this refers to E-1514 and EO-2621 units with scoop capacities of 0.15-0.25 cubic meters, known in everyday language as "power shovels"); there are 295 of them today. They wear out, and are not replaced.

Things are a little different with bulldozers. In this same time the total number of them has increased by just over 100, but figured per million rubles of construction and installation work being done by the contracting organizations themselves, the number has dropped from 2.66 to 2.44. There is an acute shortage of machines with 100 horsepower and more.

The situation is made worse by the fact that DZ-101 bulldozer based on the Altay Plant's T-4A row tractor has begun to arrive. By technical specifications it is completely unsuitable for work at construction sites, and the number of truck cranes is dropping.

It is completely understandable that some time will be needed to eliminate these and other difficulties. The planning system and operations of the manufacturing enterprises cannot be radically reoriented in a month or two. But construction must be done today, tomorrow, and the day after. This means that the only hope is the organization's own personnel and their skills, their resourcefulness, so to speak.

First of all, maximum benefit must be gotten from all available machinery. Experience teaches that machinery produces the proper impact not when it is spread around at small farms, but rather when it is concentrated (of course, within reasonable limits) at specialized subdivisions. In this connection the ministry formed the Spetssel'stroy [Specialized Rural Construction] Trust, which carries out a respectable amount of earthmoving work by mechanized means, installs prefabricated and reinforced concrete design elements, and builds large collectors. There are also 15 mechanization administrations and specialized mobile mechanized columns, which are their equivalent, at general construction organizations.

The most rational structure for such formations has developed at the Mogilevsel'stroy Trust. Its administration has seven sections: three of them are universal-type territorial sections (each serves two or three mechanized columns), as well as sections for earthmoving machinery; power, pneumatic wheel, and truck cranes; scheduled preventive repair work (with a repair machinery base); and small-scale mechanization. Thanks to this kind of concentration and specialization, the mechanization administration has been able, with a lower index of machine availability, to make a greater contribution to fulfillment of the program of the trust than similar subdivisions in other places. This administration is becoming a reference standard for the operation of hydraulic machinery. The problem of "Monitoring the operation of construction machinery" by means of computer is being developed and solved at this administration.

Taking similar organizational steps has helped bring about the situation today where the output of the chief machines and equipment in the physical indexes of the republic Ministry of Rural Construction is

significantly higher than directive norms and the assignments for reducing manual labor are being realized.

However, the reserves for further intensification of machine use are by no means exhausted. The machines still have a comparatively short working day, lasting no more than 10 hours on the average, and downtime is considerable. The seemingly obvious solution to the question is not so simple in reality. Before the machines can be loaded more fully they have to have proper conditions to maintain their "form," or they will not withstand the strain. This is what is difficult, if we consider that almost half of all the machinery now being operated has lasted well beyond its expected service life. As the saying goes, there is not much fat here.

For this reason the problem of repair becomes paramount. The trusts have formed and are setting up model bases for scheduled preventive maintenance, technical servicing, and repairing small troubles. It is true that they do not have all the equipment that they should and lack spare parts...

But then, what will happen with serious troubles (which occur quite often), when major overhauls are needed? According to statute wheeled and caterpillar earthmoving machinery should be "treated" by Sel'khoztekhnika organizations and hoisting machines by the corresponding enterprises. But they do not do half of what is needed. Moreover, any construction worker knows all about the torments associated with repairing cranes, bulldozers, and excavators. As for hydraulic machinery, there is no need to even mention it.

This means that we must "invent the wheel" again. The ministry has set up two plants that work on equipment repair. With the acute shortage of metalworking lathes (they are literally worth their work in gold), assembly components, processing materials, and similar things this is not an easy job. But there is no other answer; some way out of the situation must be found.

The same thing is true with small power equipment, tools, and attachments. At best one-third of the number needed are supplied in a centralized manner, and they are not top quality, the finest articles. But without small power equipment the large power equipment does not have the expected impact, because it cannot insure full performance of jobs. The construction workers themselves have to design, streamline, test, polish, and fabricate.

The planning and design bureau of the ministry, both independently and in cooperation with other organizations, has carried out several interesting development projects that promise great benefits. They are aimed at eliminating tight spots in production. The only trouble is that it is not possible to realize them all quickly and supply the

devices to the brigades, sections, and mobile mechanized columns. Everything that conditions permit is being done. Each year, taken on the average, the republic Ministry of Rural Construction prepares at least 1.5 million rubles worth of progressive mechanization and automation equipment. Although this is a tangible amount, it falls far short of the need.

The time has come to set up sections in all places which would concentrate small power equipment and use it wisely.

The construction worker has rigidly defined actual duties. But if circumstances force him to work on something else, whether it is planning, designing, performing the functions of developers, machinery and equipment manufacturers, or something else of that sort, everything possible must be done to see that this "deviation" from the direct line does not involve obstacles that are difficult to overcome, that it is not chronically delayed. It would be good if his fate in this situation were alleviated by those ministries, departments, enterprises, and organizations who are now doing a poor job filling the orders of the construction workers, who are not keeping up with the demands made of them.

The practices being followed today in the Belorussian SSR Ministry of Rural Construction obviously must not be considered the norm; they are a forced action, the way out of a difficult situation. Every individual must do his or her job conscientiously. The construction worker should construct things.

Committee Lists Wrongdoers

Minsk SOVETSKAYA BELORUSSIYA in Russian 24 Nov 79 p 2

[Article: "When Deadlines Are Not Met..."]

[Text] The vast program of construction of housing and sociocultural facilities is a very important part of party socioeconomic policy developed by the CPSU Congress.

Unfortunately, construction of these objects is going poorly this year. In the first three quarters the plan for introduction of housing was only 88 percent fulfilled, while for general educational schools it was 87 percent, for children's preschool institutions 74 percent, for hospitals 81 percent, first aid stations and clinics 25 percent, and vocational-technical schools 47 percent.

For this reason the Belorussian SSR People's Control Committee reviewed the question of the irresponsible attitude of leaders in certain ministries and departments toward the construction and introduction of housing and sociocultural facilities. Reports by officials were heard.

It was noted at the meeting that the Belorussian SSR Ministry of Rural Construction (minister Comrade Danilenko, deputy Comrade Tarasik) is working especially poorly in this area. The organizations under it fulfilled just 76 percent of the plan for turning over housing for operation, 80 percent for construction of general educational schools, 54 percent for children's preschool institutions, and 42 percent for vocational-technical schools.

Judging by everything, the leaders of many organizations in this ministry underrate the importance of sociocultural facilities and view them as secondary. This work does not have the necessary intensity. Manpower resources, building materials, and machinery are diverted to other projects and serious shortcomings are permitted in the organization of production and labor.

Extreme irresponsibility was shown, specifically, by the managers of the Polotsksel'stroy [Polotsk Rural Construction] Trust (chief engineer Comrade Shimanskiy). While the trust as a whole fulfilled its plan of construction and installation work by 102 percent and had 106 percent of the planned available work force, it did only 58 percent of its plan for introduction of housing. Mobile mechanized column No 145 of this trust (Chief Comrade Kovalevskiy), for example, is not doing a satisfactory job on construction of two 70-apartment residential buildings and a group boiler room in the city of Braslav. Because of a low level of labor organization 200 worker-days were lost in the first nine months of the year for lack of work and 220 days for absences authorized by the administration.

Serious shortcomings and omissions were found in the Brestsel'stroy [Brest Rural Construction] Administration (chief Comrade Ruzhanskiy). Of the 36 projects that are supposed to have been turned over, only 18 have been.

The Montazhspetsstroy [Installation and Special Construction] Trust (Manager Comrade Bezushko) violated the delivery schedule for semi-finished pipe to 30 start-up projects in September. The Stroyindustriya [Construction Industry] Trust (manager Comrade Kolosovskiy) failed to deliver more than 30,000 cubic meters of prefabricated reinforced concrete, 23,900 square meters of floor panels, and 3,000 square meters of window framing.

Organizations of the Belorussian SSR Ministry of Industrial Construction (deputy minister Comrade Trusov) failed to introduce 10,000 square meters of housing space, schools for 1,200 children, preschool institutions for 2,200 children, vocational-technical schools for 160 students, hospitals with 347 beds, and first aid stations and clinics with a capacity of 2,000 visits.

The Molodechno Trust No 23 (manager Comrade Prat'ko) failed to concentrate materials and manpower resources at the priority construction sites while significantly overfulfilling the plan at carryover projects. Some projects in a high state of construction readiness were not turned over for operation even though all necessary resources to complete them were available.

Many projects were not introduced on time through the fault of construction industry enterprises of the Belorussian SSR Ministry of Industrial Construction (deputy minister Comrade Kurlenya) that did not insure timely supply of design elements and parts to them. The ministry is not taking proper steps to bring above-norm stocks of building materials into production use.

Organizations of Belmezhkolkhozstroy [Belorussian Interkolkhoz Construction] (chairman of the board Comrade Kichkaylo, first deputy chairman Comrade Troyan) failed to introduce 83 residential buildings with a total housing area of 64,200 square meters. They fulfilled only 30 percent of their assignment for construction of clubs and houses of culture, 65 percent for schools, and 81 percent for children's pre-school institutions.

At many priority construction sites, especially boiler rooms, the Belorussian SSR Ministry of Installation and Special Construction Work (minister Comrade Antonovich, first deputy Comrade Tverdov), work is going forward with small numbers of personnel and without proper engineering-technical leadership. Special projects are considerably behind schedule through the fault of Belsantekhmontazh [Belorussian Sanitary Engineering Installation] Trust No 1 (manager Comrade Zhigunovskiy).

Enterprises of the Belorussian SSR Ministry of the Building Materials Industry in the first three quarters fell 155,000 tons short of the plan for cement, 46.5 million for bricks, 33,000 square meters short for exterior ceramic tiles, and 190,000 cubic meters short of light aggregate. Belorussian SSR Gossnab (deputy chairman Comrade Gor'kaya) did not fully utilize allocations for cement, rolled metal products, crushed rock, and other materials from outside the republic.

The customers are also at fault for the problems. In many cases they have not prepared construction sites on time. They have delayed in turning over equipment and planning documents, and have made changes in them while construction was underway. Belorussian SSR Goskomsel'khoshtekhnika (deputy chairman Comrade Pashkovich) has not supplied the necessary equipment to start-up projects of Belmezhkolkhozstroy.

The Belorussian SSR People's Control Committee demanded that Belorussian SSR minister of industrial construction I. M. Mozolyako,

Belorussian SSR minister of rural construction V. D. Danilenko, Belorussian SSR minister of installation and special construction work I. A. Antonovich, and chairman of the board of Belmezhklokhozstroy A. T. Kichkaylo take additional steps to insure fulfillment of the year's plan for introduction of housing and sociocultural facilities.

Note was taken of the unsatisfactory leadership provided by Belorussian SSR first deputy minister of installation and special construction work K. D. Tverdov, Belorussian SSR deputy minister of industrial construction A. Ya. Trusov, Belorussian deputy minister of rural construction V. P. Tarasik, and first deputy chairman of the board of directors of Belmezhkolkhozstroy Ye. A. Troyan with respect to the activity of subordinate organizations. The question of their responsibility will be reviewed based on the results of work for 1979.

The attention of Belorussian SSR deputy minister of industrial construction B. S. Kurlenya was called to the unsatisfactory work of enterprises in the construction industry.

Official notice was taken of the statement by deputy chairman of Belorussian SSR Gosstab L. A. Gor'kaya to the effect that steps are being taken to insure that projects receive the needed amounts of materials.

The Belorussian SSR People's Control Committee obliged Belorussian SSR deputy minister of the building materials industry D. L. Akopov and deputy chairman of Belorussian SSR Goskomsel'khoshtekhnika I. P. Pashkovich to review immediately the questions of producing and shipping building materials to contracting organizations of the republic and supplying needed equipment and articles to Belmezhkolkhozstroy.

The Belorussian SSR People's Control Committee announced severe reprimands for N. I. Prat'ko, manager of Trust No 23 of the Belorussian SSR Ministry of Industrial Construction, and E. A. Shimanskiy, chief engineer of the Polotsk'sel'stroy Trust of the Belorussian SSR Ministry of Rural Construction. L. P. Ruzhanskiy, chief of the Brestsel'stroy Administration of the Belorussian SSR Ministry of Rural Construction, and V. N. Vetrov, chairman of the board of directors of the Mogilevskaya Oblast interkolkhoz construction organization were given reprimands. L. A. Zhigunovskiy, manager of Trust No 1 of Belsantekhmantazh of the Belorussian SSR Ministry of Installation and Special Construction Work was also censured.

The Belorussian SSR People's Control Committee warned comrades Prat'ko, Ivanov Ruzhanskiy, Vetrov, and Zhigunovskiy that if they do not fulfill their year's plan for introduction of housing and sociocultural facilities they will be removed from their jobs.

It was noted that the findings of this review have been considered by the Brestskaya, Gomel'skaya, Grodnenskaya, Minskaya, and Mogilevskaya oblast people's control committees as well as many city and rayon committees, and guilty parties have been called to account. It is suggested that oblast, city, and rayon committees intensify the activities of people's control groups and posts at sociocultural projects scheduled for introduction.

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CONSTRUCTION, CONSTRUCTION MACHINERY, AND BUILDING MATERIALS

IMPROVEMENTS IN PLANNING OF CAPITAL CONSTRUCTION URGED

Moscow PLANOVYE KHOZYAYSTVO in Russian No 10, 1979 pp 19-28

[Article by A. Stepun, deputy chief of a division at USSR Gosplan:
"Improvements in the Planning of Capital Construction -- An Important
Economic Task"]

[Text] In July 1979, the CPSU Central Committee and the USSR Council of Ministers adopted the resolution entitled "On Improvements in Planning and Intensifying the Action of the Economic Mechanism With Regard To Raising Production Efficiency and the Quality of Work."

In this resolution, an important role was assigned to those questions concerned with improving the planning for capital construction and accelerating the placing in operation of production capabilities and projects, since growth in the production of material resources, an increase in social blessings for workers and the entire process of expanded reproduction are dependent to a tremendous degree upon the successful fulfillment of the tasks assigned to this branch.

An extensive program of capital construction is being carried out in our country. More than 700 large industrial enterprises were placed in operation during the past 3 years of the Tenth Five-Year Plan. In addition, new capabilities and production efforts were placed in operation and reorganizational and technical re-equipping work were carried out at many enterprises. During these same years, 321 million square meters of housing space, many schools, pre-school institutes and public health and cultural installations were turned over for operation.

During this current year, the plans call for the implementation of 117.4 billion rubles worth of capital investments and the placing in operation of fixed capital valued at 126.5 billion rubles, or 20 percent more than the amount of capital placed in operation during 1978.

At the same time, capital construction is beset by serious shortcomings -- expressed in the form of disruptions in the planned schedules for placing

many capabilities and projects in operation, growth in the amount of unfinished construction and dispersion of resources among numerous construction projects and installations.

In 1976 the volume of unfinished construction amounted to 80 percent of the annual volume of capital investments, in 1977 -- 85 percent and in 1978 -- also 85 percent, instead of 70 percent according to the five-year plan computations for this year. At the same time, the technical readiness of many construction projects was low owing to an extremely large number of projects being built simultaneously.

The 1979 plan included more than 30,000 construction projects of a productive nature that were begun earlier and for which capital investments amounting to 21 percent of their surplus value had been allocated. This was insufficient for completing the construction within the planned periods. Nevertheless, the ministries and union republics called for approximately 10,000 such construction projects to be added to the plan.

As a result of shortcomings in planning and construction, the schedules for the completion of work on many enterprises and projects exceed the normative schedules to a considerable degree. Thus, according to data supplied by the USSR CSA, of 638 enterprises and projects studied, all of which were built in 1977, only 200 were placed in operation either during the normative period or ahead of schedule and the normative duration for the construction of 180 enterprises and projects was exceeded by twofold or more.

One of the principal causes of the negative phenomena in capital construction has been the failure to carry out fully the decisions adopted in May 1969 by the CPSU Central Committee and the USSR Council of Ministers concerning improvements in the planning of capital construction, intensifying economic stimulation of construction production and, in particular, making the five-year plan the principal form for planning.

As pointed out during the 25th CPSU Congress, planning for just one year is unthinkable considering the present scales of construction work. The construction programs must be based upon a five-year plan with a breakdown of tasks by years. Only on the basis of a five-year plan for capital construction is it possible to develop plans for construction production and the development of the construction industry, for planning-research work, for the production of technological equipment and so forth.

Based upon the socio-economic tasks defined by the party for a good period of time into the future and taking into account the Complex Program for Scientific-Technical Progress, the resolution calls for the development (and this is of special importance for planning capital construction) of the Principal Trends for the Economic and Social Development of the USSR for 10 years, with a more detailed work-up for the indices for the first five-year period. Subsequently, after 5 years have elapsed, the plans call

for refinements to be introduced into the principal trends and for them to be composed for a new five-year period. This will make it possible to coordinate closely the indices for the development of the economy and individual branches at the junction point for the five-year plans, establish their continuity and plan long-range construction programs which transcend the limits of a particular five-year period.

The tasks for a forthcoming five-year period will be developed in two stages. During the first stage, control figures must be determined for the most important sections and indices of the five-year plans, with a breakdown of the tasks by years, and presented to the USSR Council of Ministers no later than 5 months prior to the commencement of the next five-year plan. Thereafter the tasks of the five-year plan are defined more specifically in the annual plans and even refined in individual instances.

In the interest of giving the five-year plan stability and converting it into the principal planning form, the resolution calls for the development of balances (material and labor resources, production capabilities and a financial balance) within the plan for each year of the five-year plan and also for a determination as to the material and financial reserves required to satisfy the needs of production and capital construction. The wholesale prices in industry, estimated prices in capital construction and the rates for freight shipments must remain constant throughout the course of the five-year plan.

Limits for capital investments and construction-installation work, in the form of upper limitations for material, financial and other resources, which can be allocated during a given five-year period for the development of a branch, sub-branch or specific production effort, will be approved for the USSR ministries and departments and the councils of ministers for the union republics in the five-year plans (with a breakdown of tasks by years). These limits will be in addition to the indices for placing production capabilities, projects and fixed capital in operation. The appropriate indices for the modernization and technical re-equipping of enterprises will be allocated from the overall limit of capital investments and tasks associated with increasing production capabilities.

The limits established in the five-year plan by years do not have to be reconfirmed in the annual plans. The tasks of the five-year plan for capital construction must be made available to each construction project, association and enterprise, with a distribution by years. The task of refining the estimated cost of capital investments for individual construction projects, resulting from the use of more improved equipment and a progressive technology, should be carried out within the established limits and taking into account the right granted to the USSR ministries and departments and the councils of ministers of the union republics to retain for their own use a reserve amounting to 5 percent of the overall limit of capital investments.

The plans for contractual work, with a distribution by ministries and contractor-departments, union republics, ministries and customer-departments and with the regions of concentrated construction being indicated, will be presented for the consideration of the government in order to achieve more complete coordination of the plan for capital investments with the operational plans of the construction-installation organizations, simultaneously with the national economic plans.

The quality of the five-year plans for capital construction and their stability are greatly dependent upon the scientific-technical level of the normative base for planning. Thus the plans call for the creation of progressive technical-economic norms and normatives, for use in the planning of capital construction, and particularly normatives for specific capital investments.

In the resolution as adopted, a considerable amount of attention was given to those questions concerned with improving territorial planning. In particular, programs will be developed for solving large-scale regional problems and for the formation and development of very important territorial-production complexes and technologically and economically inter-related groups of enterprises having a common system of economic, transport and socio-cultural services. The plans call for the development of consolidated plans for capital construction for these complexes.

Lists of newly begun construction projects of a production nature will be approved in the five-year plans for the purpose of ensuring stability for the five-year plans for capital construction and also for creating a base for the timely preparation of planning-estimates documentation, technological equipment having an extended production cycle and, an especially important factor, capabilities for the construction organizations.

The lists of the more important construction projects will be approved by the USSR Council of Ministers upon presentation by USSR Gosplan; of the remaining construction projects, the estimated cost of which is 3 million rubles or higher -- by the USSR ministries and departments and the councils of ministers of the union republics, by agreement with USSR Gosplan; those having an estimated cost of less than 3 million rubles -- in the manner established by them. The mentioned lists must contain the principal indices for the future construction projects: their location, approximate value, production capability, planned schedules for the commencement and completion of construction. These indices are determined based upon TEO's [technical-economic substantiation] which are developed and approved prior to the commencement of the forthcoming five-year period, plans for the development and disposition of branches and upon plans for the development and disposition of productive forces by economic regions and union republics. Thus, practically all of the problems concerned with the development and disposition of the country's productive forces will be solved under governmental and planning organ control.

During the 25th CPSU Congress, it was noted that in capital construction priority attention is being given to the problem of raising the effectiveness of capital investments. Moreover, it was pointed out that one of the principal concerns at the present time is that of achieving more efficient utilization of the productive potential created in our country and ensuring constant renovation of existing fixed productive capital.

One of the most important trends with regard to further increasing production capabilities involves the technical re-equipping and modernization of existing production operations. These actions will make it possible to increase the production of goods more rapidly and with less capital expenditures than would be required if existing enterprises were expanded or new ones built.

In order to obtain maximum and rapid economic results with minimal expenditures, the disclosure of the opportunities for rational and more complete utilization of the reserves of existing production efforts, taking into account the reorganization and technical re-equipping of such production, must precede the composition of the five-year plans for capital construction at all levels -- from an enterprise to a ministry. The USSR ministries and departments and the councils of ministers of the union republics must develop, within the structure of the five-year plans, planning balances, computations for the utilization of production capabilities and fixed capital and consolidated plans for the modernization and technical re-equipping of existing enterprises and they must reveal their capital investment and equipment requirements, as needed for carrying out the planned measures. This will make it possible to carry out the re-equipping and modernization of existing enterprises not on an individual case basis but rather in a complex manner and in accordance with an earlier developed plan.

Just as in the past, the construction of new and the expansion of existing enterprises continues to play an important role in the development of the branches. In the future this work will be carried out, particularly in those instances where a requirement exists for increasing output production considerably or where such production is associated with the introduction of basically new scientific and technical achievements, through a proper disposition of the productive forces throughout the country and through the development of new sources of raw materials, fuel and electric power. However, an examination of these questions must be predicated upon that statute in the resolution which holds that resources must be allocated for the construction of new and the expansion of existing enterprises only in those instances where the existing enterprises are unable to meet the national economic requirements for a particular type of product, even following modernization or technical re-equipping.

Considerable importance is attached to the method employed for developing and ensuring stable title lists for construction projects throughout the

entire construction period, that is, essentially for the entire plan for capital investments and construction production. It should be borne in mind that the title lists for construction projects of a production nature must be composed based upon capital investment and construction-installation work limits that have been approved in the five-year plan, upon lists of such construction projects and upon planning-estimates documentation and norms for the duration of construction that were approved in the established manner. It has been established that the title lists for new and very important construction projects of a production nature, that have been included in the construction plan for the following year, will be approved by the USSR Council of Ministers; construction projects the estimated cost of which is 3 million rubles or higher -- by the USSR ministries and departments and the councils of ministers of the union republics, by agreement with USSR Gosplan; construction projects the estimated cost of which is less than 3 million rubles -- by the above directly.

The principal requirement must be observed in a strict manner: an approved title list is a permanent planning document for the entire period of construction and it is mandatory for the customers, contractors, planning, financial, banking and supply organizations and for the suppliers of equipment and structures.

Changes can be introduced into the title list indices only during a review of the plans in connection with the use of more improved equipment or a progressive technology. The work volumes for a construction project, called for in the title list for the next year, are not reviewed. We are speaking here only of the volumes and schedules required for compensating for a lag in work, if such occurred.

Certainly, the observance of such a system is by no means easy. It requires strict planning discipline and responsibility on the part of all organizations participating in the construction, particularly the contractor, for the fulfillment of the obligations undertaken when the construction project was included in the plan. At the present time, the requirement concerning mandatory compensation for a lag tolerated during the course of work applies only to certain especially important construction projects. However, this requirement is not always observed. A general improvement in the level of planning and good balance coordination for plans in all of its components and trends will promote the fulfillment of the planned tasks. When necessary and in the interest of establishing additional volumes of work at those construction projects where lags will develop, the ministries and union republics can make use of the reserve of capital investments and construction-installation and contractual work left at their disposal.

It should also be borne in mind that the order periods for the production of the principal technological and power engineering equipment having an extended production cycle are effective throughout the entire period of construction, whereas orders for the delivery of metal construction

structures must be issued as a rule for no less than two years. Beyond any doubt, this will promote stability in the plans for capital construction and it will release the clients, suppliers of equipment and structures and the organs of USSR Gosstrib from having to perform a great amount of laborious and necessary work annually in connection with the drawing up of contracts for deliveries and the issuing of orders.

The financing banks play a very important role with regard to exercising control over observance of the norms for the duration of construction and the indices for the title lists of construction projects. It is stipulated in the adopted decision that USSR Stroybank and USSR Gosbank provide the financing for construction projects, provided the established order for the approval of the title lists of construction projects is observed.

Beyond any doubt, strict observation of the invariability of the title lists of construction projects and the established construction schedules will create true conditions for the gradual elimination of dispersion of capital investments and limitations on new construction and it will make it possible to raise the processing level and responsibility for the quality of the plans for capital construction.

In the adopted resolution, a great amount of attention was given to those problems concerned with further orientation of all economic and financial work carried out by the construction-installation organizations and to evaluating their work in terms of the final results of construction production -- the placing in operation of capabilities and projects.

This particular problem is not a new one. Since 1961, the index for placing capabilities in operation has become a principal and determinant one in capital construction. However, with regard to the practice of evaluating the activities of construction organizations, the material resources, working capital, wage fund and system for awarding bonuses made available to them have been oriented mainly towards indices associated with the overall volume of construction-installation work. The shortcomings associated with this include -- prolonging of the construction schedules, dispersion of forces and resources among numerous projects, a preference for so-called profitable work involving a large proportion of finished and costly structures and parts or low labor-intensive operations, leaving "until later" a large number of imperfections which hamper the normal operation of completed enterprises and installations -- these items have been the subject of criticism on more than one occasion.

Subsequent to 1969, when in conformity with the May (1969) decision handed down by the government concerning capital construction, the index of marketable construction output was introduced for the very first time as a principal index, approved by the construction-installation organization together with tasks for the placing in operation of capabilities and projects, substantial changes occurred with regard to eliminating these shortcomings. The economic significance of this new index derives from the

fact that it determines the estimated cost of the construction-installation work, carried out by projects and stages of work since the commencement of the construction which, in accordance with the plan for the given year, is to be completed and turned over to the client. Meanwhile the work stages, which should have been outlined in a strict manner and coordinated technologically with large portions of the projects and installations under construction (for example, individual bays of departments, complexes of underground mine workings, sectors of finished transport or land reclamation installations and so forth), turned out to be smaller in order to simplify the mutual current accounts between the clients and contractors. Although the accounts between the clients and contractors for finished projects and stages are rather impressive in terms of size at the present time, no substantial improvement has taken place in the fulfillment of plans for placing capabilities, start-up complexes and projects in operation, since the principal index for marketable construction output is computed by stages which, in essence, differ not at all from the former gross volume of construction-installation work.

The diverse nature of the planning indices for organizations which converted over to the new system of management and which operate in the old manner and ministries for which generally speaking no tasks for marketable construction output were established created definite difficulties in management and it failed to strengthen planning discipline or raise responsibility at all levels for the final results of construction production.

Thus, commencing with the Eleventh Five-Year Plan, the following indices should be approved for all USSR ministries and departments, the councils of ministers of union republics and their subordinate organizations, which are engaged in carrying out construction-installation work -- in the five-year plans and with a breakdown of tasks by years:

...the placing in operation of production capabilities and projects, including an increase in capabilities owing to technical re-equipping and the modernization of existing enterprises;

...the overall volume of marketable construction output produced using internal resources -- cost of construction-installation work by enterprises, phases, start-up complexes and projects turned over to the client and prepared to produce goods and render services, with a distribution of the overall volume by clients.

Thus the work stages are excluded as a part of the marketable construction output.

Distinct from existing practice, the tasks for the placing in operation of capabilities and projects will also be established for organizations which install the principal technological equipment, upon which a great deal is dependent -- the timely placing in operation of capabilities and the development of planning indices for future enterprises. In order to compare

the cost volume indices for the activities of contracting organizations and clients, construction-installation work volumes will be established by the higher organization according to the enterprises, phases, start-up complexes and projects completed during the planned year, that is, according to marketable construction output.

In addition to the mentioned principal indices, tasks will be approved in the five-year and annual plans for construction production with regard to increased labor productivity, a limit on the number of manual and office workers, the overall wage fund, profits (and for individual organizations -- a reduction in the production costs for construction-installation work), the introduction of new equipment and delivery volumes for materials, machines, mechanisms and other material-technical resources.

In order to determine the requirements for material-technical resources, the wage fund, working capital and credit, an overall volume of contractual work (with distribution by clients) will be established by USSR Gosplan for the appropriate ministries and departments of the USSR and the union republics, with the work to be carried out using internal resources.

With the introduction of indices into the practice of planning for this system, the evaluation of economic activities and of fulfillment of socialist competition obligations and also economic stimulation will be carried out based upon the results of fulfillment of tasks for placing production capabilities and projects in operation, facilities which were prepared to produce goods (render services), and also tasks for marketable construction output, growth in labor productivity and profits.

The presently effective index of labor productivity in construction, determined on the basis of the overall volume of construction-installation work carried out using internal resources, is oriented towards the carrying out of materials-intensive work involving a high proportion of expenditures for embodied labor. Thus the necessary instructions are furnished in the resolution on preparing the estimates-normative base for a gradual conversion over to planning labor productivity in the construction-installation organizations based upon net (normative) output or another index which more accurately reflects changes in labor expenditures and the wage fund -- according to the norm per ruble of output -- the index used for planning labor productivity.

In those instances where, for individual quarters or a year of a five-year period, the tasks of the construction-installation organizations with regard to placing production capabilities and projects in operation, marketable construction output and profits were either not specified or specified in negligible amounts, the activities of the organizations must be evaluated according to the results of fulfillment of the construction-installation work, in conformity with the work schedules approved by the contractor and

client and also based upon the indices for reduced production costs for the construction-installation work and for growth in labor productivity.

In 1981, work must be completed on the introduction of accounts between the client and contractor for enterprises, phases, start-up complexes and projects which have been fully completed and turned over for operation, facilities which are prepared to produce goods and render services, in accordance with the estimated value of the marketable construction output. With the conversion over to the new system of computations, the clients are no longer issuing advances to the contractual organizations for expenses associated with the unfinished production of construction-installation work. The mentioned expenses will be covered by means of bank credit, with use being made of funds released by the clients in connection with the elimination of intermediate payments. Raised interest rates will be employed for the use of loans when the planned periods for delivering completed projects have been exceeded.

A normative amounting to 10 percent of the annual volume of work carried out using internal resources is established for the construction-installation organizations for covering expenses associated with the unfinished production of construction-installation work during the period between the time limits for controlling the credit.

More effective financial control by the banks over the timely placing in operation of production capabilities and projects must promote an expansion in the use of the credit resources of banks for financing capital construction.

Another possibility is also recognized as advisable -- the carrying out in individual branches of a gradual conversion over to constructing enterprises and installations, using credit presented by USSR Stroybank [All-Union Bank for the Financing of Capital Investments] to the contracting construction organizations, in amounts to cover the complete cost of the enterprise or project under construction, in conformity with the estimate adopted by the general contractor, that is, for "full completion."

This progressive form of construction organization underwent testing, in the form of an experiment, at a number of construction projects during the Ninth Five-Year Plan. However, mainly owing to the fact that the contractors did not wish to receive or store the equipment, the experiment was never completed. It is obvious that a more careful selection of the construction projects should be made for this purpose and they should be erected by organizations specializing in the particular type of construction involved (for example, the oil industry, line installations, elevator construction, certain chemical projects, petroleum chemistry, mining and so forth).

The decision handed down on increasing the average amount of bonus issued for ahead-of-schedule or the timely placing in operation of capabilities

and for issuing additional bonus amounts to construction-installation organizations from the computed amount of profit obtained as a result of the ahead-of-schedule placing in operation of an enterprise or production effort is aimed at accelerating construction operations and raising the material interest of the collectives of various organizations -- construction and installation, clients, planning-research.

Since the conditions and nature of technical re-equipping operations are specific, the leaders of associations and enterprises are authorized to approve title lists for them independently, regardless of the overall estimated cost of the measures planned.

When determining the expenses for technical re-equipping work and the modernization of existing enterprises, the leaders of production associations and enterprises are authorized to apply correctional branch coefficients, that have been approved by USSR Gosstroy, to the effective estimated norms for construction-installation work and to the norms for overhead expenses.

An important task is that of ensuring that planning-estimates documentation is made available to the construction projects in a timely manner and also raising the quality of such documentation. The solving of this task will be promoted to a considerable degree by stable five-year plans for capital construction and the development based upon these plans of a five-year plan for planning-research work and the development of a network and a material-technical base for the planning and research organizations. This will create the conditions required for organizing systematic work by the planning organizations, for the correct combination of work volumes for long-range and current planning and for gradually reducing the above-normal amounts of unfinished planning work.

In the interest of improving planning-estimates work, the volumes and schedules for preparing planning-estimates documentation should be reduced.

The experience of planning and building large enterprises, the cost of which at times amounts to hundreds of millions of rubles, for normative construction periods of 5-8 years, proves that the development of technical plans for an enterprise on the whole, taking into account its complete development, requires a considerable period of time. The data obtained from a random survey of the actual planning periods for enterprises placed in operation in 1977 testifies to the fact that the planning periods for enterprises and installations constitute 50 percent of the duration of their construction. It sometimes happens that the development of the technical plans for large construction projects is completed simultaneously with the completion of construction. In such instances and in the interest of avoiding delays in the commencement of work on the construction projects, the client-ministries are authorized to employ so-called favorable financing by plans and estimates, for individual projects and types of work, prior to

approval of the complex technical plans. At the present time, for example, such favorable regimes are being employed for more than 200 large construction projects.

As a rule, such a practice leads to uncontrolled expenditure of resources for capital construction, a considerable increase in the estimated cost of construction compared to that originally declared by the ministries and, in a number of instances, to unproductive operations.

In order to eliminate this serious shortcoming, it is stipulated in the resolution that the plans and estimates for the construction of enterprises, the construction periods for which exceed 2-3 years, should be developed not for an enterprise as a whole but rather only for the first phase -- based upon the general plan for the enterprise when fully developed. Simultaneously with construction of the first phase, the planning-estimates documentation for the construction of the next phase must be prepared.

Distinct from existing practice, the USSR ministries and departments are authorized to permit, when necessary, the development of blueprints and estimates for them, for large construction projects having extended planning periods and a general plan, for a volume of work during the first year of construction of the enterprise, prior to approval of the plan.

The maximum possible use in planning practice of standard and repeatedly used economic plans and design solutions will also serve to accelerate the planning process.

The planned organization of competitions in the area of technical plans for the construction of industrial enterprises and enterprises for other branches of the national economy and also projects and complexes of a civil housing nature will beyond any doubt bring about improvements in the quality of planning and the introduction into construction practice of advanced technical solutions.

For a period of many years, in conformity with the established procedure, the maximum data for approval of planning-estimates documentation that would allow a construction project to be included in the draft plan for the next year was 1 September of the year preceeding the one being planned. But as the technical solutions became more complicated, enterprises and projects under construction consolidated and construction shifted into the eastern regions, it turned out that support in the form of the necessary preparation of the construction organizations, issuing of working documentation to the construction projects, distribution on the basis of this documentation of orders to those enterprises producing construction structures and so forth, the period remaining following this date until the beginning of the fiscal year is insufficient. Thus, commencing with the plan for 1981, the construction projects should be provided with properly approved technical documentation and also blueprints for an annual volume of work, not prior to 1 September as at present, but rather prior to 1 July of the year preceeding the one being planned.

Certainly, these are not the only measures which must be developed and adopted for the purpose of improving planning-estimates work. Such proposals are presently being further developed.

In connection with implementing improvements in capital construction, special importance is being attached to further regulating material-technical support for construction projects. An analysis of the causes of disruptions in the schedules for placing production capabilities in operation reveals that many capabilities and projects are not entering operations on schedule owing to delayed or incomplete shipments of technological equipment. The slow introduction of progressive forms for organizing and paying for labor, particularly the brigade contract method, and extended periods of worker idle time -- to a large extent, these are the consequences of serious shortcomings in the organization of material-technical supply.

Commencing in 1969, in conformity with a decision handed down by the government, the requirements of the construction-installation organizations of a number of construction ministries for materials have been handled by the territorial organs of material-technical supply, in accordance with orders submitted by those organizations as set forth in the plans and estimates.

The advantages of such a supply system are obvious. In the adopted resolution, the plans call for the conversion over to the new system of supply, of construction projects that are included in the state plan for capital construction, to be completed in 1981.

In order to improve the work of the construction and planning organizations, clients, suppliers of equipment and structures and so forth, further development or refining is required on a number of instructive and methodological directives which regulate interaction among those participating in the construction work and their economic relationships. In particular, the rules governing contractual agreements for capital construction must be revised and also the rules for financing construction, the newly developed instructions on carrying out construction based upon permanent title lists for construction projects and under conditions wherein projects are turned over when "fully completed" should be reviewed, the statute on complete equipment deliveries should be reviewed and a number of normative indices and coefficients should be developed.

This great and responsible work requires collective efforts on the part of many central, scientific and planning organizations. The timely and high quality completion of this work will promote to a considerable degree successful implementation of some of the more important measures in the sphere of capital construction, as called for in the resolution of the CPSU Central Committee and the USSR Council of Ministers.

CONSTRUCTION, CONSTRUCTION MACHINERY, AND BUILDING MATERIALS

ARTICLE DEFENDS RIGHT TO CRITICIZE INDUSTRIAL SHORTCOMINGS

Moscow LITERATURNAYA GAZETA in Russian 12 Sep 79 p 12

[Article: "The Prosecutor Dots the 'I': A Report on a Temporary-Duty Assignment"]

[Text] *Letter to the Editor*

Dear Comrades!

The facts that I shall relate have been carefully verified. The illegality of the actions taken by General Director of the Krikovskoye Production Association of Mines, A. Gorobets, who has caused the state to incur considerable material and moral losses, leaves one with absolutely no doubt.

People at the Ministry of the Building-Materials Industry, Moldavian SSR, also know of other violations that were perpetrated with the connivance of A. Gorobets: illegal instances of writing off finished output, of writing in amendments to the plan, of making incorrect use of official vehicles, and other misdemeanors. Yet, no legal steps are being taken against him, and as for me -- a person who made so bold as to report this situation to the Committee of People's Control and to write a letter to a newspaper -- I have been fired and I don't know how many months it has been that I have been unable to find a new job.

P. Zheverdan,
former legal consultant for the
association

Excerpt from Performance Appraisal

Pavel Leont'yevich Zheverdan has been working since 1972 at the Krikovskaya Mine as a legal consultant. In November 1974 he was promoted to the job of senior legal consultant at the association, and in January 1977 he was approved in the job of chief of the Contract-Law Section.

During his entire work period he studied the specifics of production well, and made many valuable suggestions for improving the legal services provided to the association. He efficiently defends the collective's interests, exerts an active influence upon the reinforcement of contract discipline, and combats any manifestations of poor business practices.

He is a well-principled worker and active participant in social matters: he is the chairman of the comrades' court at Krikovskaya Mine, is in charge of the legal consultative services provided on a public basis, has been twice elected the deputy chairman of the ministry's Council of Legal Consultants, enjoys well-deserved authority, conducts himself in an exemplary manner in his everyday life and in public, and has been awarded the all-union badge "Winner in Socialist Competition."

Excerpt from Official Statement

It has been established that at Krikovskoye Production Association (General Director A. Gorobets) there has been a crude violation of the established procedure for the use of official passenger cars.

General Director A. Gorobets in 1978 illegally used an official vehicle six times to drive to Krivoy Rog, and also to Kiev, Voroshilovgrad, and Koblevo settlement, Nikolayevskaya Oblast. The total distance traveled by the vehicle for these trips came to approximately 14,000 kilometers, and 1890 liters of gasoline were expended. According to the vehicle manifests, the vehicle with Comrade Gorobets returned to Krikovo from these trips on the same day as departure, with an average daily distance traveled of 1000 kilometers or more. This obviously made it impossible for him to become involved on those days in the resolution of production matters.

The nonproduction expenses for the association in 1978 came to 93,000 rubles.

Within the association there are major shortcomings in maintaining the safekeeping of socialist property. There still is not a single mine in which the produced output has been handed over to storage facilities. For the sector chiefs, a subreport lists considerable balances of finished output, a large amount of which gets mixed in with product waste products and becomes unusable.

As of 1 January 1979 the value of the balances of finished output in excess of the norm, for the association as a whole, was 766,000 rubles, a figure which exceeds the established norm by 2.8 times.

Sixteen thousand cubic meters of wall units and a small boiler, with a total sum of 166,000 rubles, have been written off.

O. Belyayev,
Inspector, Committee of People's
Control, Moldavian SSR;
V. Goncharov, Chief Auditor-Inspector,
Ministry of Finance, Moldavian SSR

Inquiry by the Editorial Office

"To the Committee of People's Control, Moldavian SSR.

"The editorial office of LITERATURNAYA GAZETA has received a letter from reader P. Zheverdan, who mentions instances of the abuse of official position by the managers of the Krikovskoye Production Association of Mines for the Production of Wall Units. A similar letter was sent by him to the republic's Committee of People's Control.

"We would appreciate your informing our editorial office of the result of verifying this letter. . ."

Official Reply

Verification of the letter written by legal consultant P. Zheverdan has ascertained violations of the established procedure for the use of official passenger cars, instances of poor business practices, and other shortcomings at the Krikovskoye Production Association.

The results of the verification were considered on 1 March 1979. In the decree that was adopted, the committee directed the direction of the Minister of the Building-Materials Industry, Moldavian SSR, Comrade V. I. Akinfiyev to the shortcomings in the use of the official vehicles, in the accounting for and the safekeeping of the finished output, and also to the existence of considerable nonproduction expenditures at the Krikovskoye Association, and requested that he take effective steps to eliminate the shortcomings that had been noted.

The committee took into consideration the fact that, as a result of the poor business practices that had been employed, the Kriulyanskiy Rayon Committee of People's Control issued a strict reprimand against A. Gorobets.

In partial compensation of the material losses incurred by the state by the illegal payment of funds for the maintenance of drivers of passenger cars, the republic Committee of People's Control has imposed a stop-payment order on salary, in the amount of one month's salary, for General Director A. Gorobets and his deputy, V. Reshetnikov.

A. Mantsev,
Deputy Chairman, Committee of
People's Control, Moldavian SSR

Excerpt from Order No. 38

In view of his crude violation of his labor duties, P. L. Zheverdan is relieved of his assignment as senior legal consultant, Krikovskoye Production Association of Mines for the Production of Wall Units, effective 3 April 1979.

V. Akinfiyev, Minister of Building-
Materials Industry, Moldavian SSR

Memorandum for the Record

At the request of the editorial board, I have verified the letter written by reader P. Zheverdan. The following situation became known.

In March 1978, the former deputy general director of the Association for Sales and Supply, A. Gorobets, was appointed General Director. He apparently did not like the meticulousness of the Chief of the Legal Section P. Zheverdan, who repeatedly made critical comments in the local, republic-level, and central press, and provided information to the rayon party committee, the ministry, and the republic's Committee of People's Control, in the attempt to eliminate the major violations of financial and state discipline that were being perpetrated at the association.

P. Zheverdan's articles and letters in PRAVDA ("But the Artful Dodgers Are Not Dozing"), SOVETSKAYA MOLDAVIYA ("Are They Somebody Else's Thousands?"), VYTSA SATULYJ ("The Magdachetskiy 'Bazaar'"), and VECHERNIY KISHINEV ("Expended Pallets") were acknowledged to be correct. However, the violations continued. General Director A. Gorobets retained as drivers on the payroll of industrial-production personnel, listing them as fitters. As for the reasons for the formation of balances of finished output in excess of the norm, no reasonable explanation was provided. As for the persons who were responsible for the "spoilage" of 16,000 cubic meters of wall units have not been established, and the value of those wall units -- 166,000 rubles! -- had simply been written off as a loss.

Naturally, legal consultant P. Zheverdan was not satisfied with this. In the first quarter of 1979 the newspapers began again to publish articles based on his materials.

P. Zheverdan's statement in PRAVDA (18 January 1979) was considered at the bureau of the Kriulyanskiy Rayon Committee of the Communist Party of Moldavia, at the Krikovskoye Association, and the Ministry of Building-Materials Industry, Moldavian SSR. The ministry and the association prepared a plan of measures and began to eliminate the shortcomings. The elimination ended with. . . the firing of the author of the article. As for where the 16,000 cubic meters of wall units "evaporated" to (that constitutes a tremendous mountain of stone!), 16,000 cubic meters with a value of 166,000 rubles, that remains a mystery.

The "elimination" continued as follows.

In January there was a hurried issuance of a special edition of the GORNYAK wall newspaper, half of which was occupied by a colored caricature of the author of the articles, Zheverdan (digging in a trash can!). On 6 February the general director asked the minister to punish the legal consultant for alleged tardiness in coming to work. On 9 February A. Gorobets wrote the minister another report, requesting that steps be taken inasmuch as he felt that "P. Zheverdan's activities are inadmissible and harmful."

On the same day the local committee brought up the question concerning Zheverdan at a trade-union meeting, at which the general director stated, "The climate here is an unhealthy one, and the person who is to blame for everything is Zheverdan. He writes down everything that we talk about at the meetings, and then he sends it to the party's rayon committee. And he was kicked out of the party formerly."

Other responsible workers at the association made statements in the same vein.

Decision adopted: "To cancel P. Zheverdan's membership in the trade union."

At the same time a joint letter was sent to the ministry, asking that "Zheverdan be taken out of the collective."

On 2 April 1979 Minister of the Building-Materials Industry, Moldavian SSR, V. I. Akinfiyev, with a group of administrative workers from the ministry, arrived at the association, called together a group of associates of the administration apparatus, summoned P. Zheverdan, and gave him a strict dressing down. Then he immediately signed the draft version of an order that he had brought with him, and stated: P. Zheverdan had been removed from his assignment as of 3 April 1959 in accordance with paragraph "a", Article 263, KZoT [Labor Code] of Moldavian SSR (single crude violation of labor duties -- as stated in that article).

The responsible comrades with whom I spoke attempted to speak more about P. Zheverdan's personality than about the essence of the matter. They cited the fact that, in years gone by, he had been such and such, and they were not even embarrassed to recall that at one time he had been famous as a "bad boy" in school. However, they decisively closed their eyes to the fact that during the past seven years in which he had worked in the ministry system, P. Zheverdan had not had any reprimands, and had been given several commendations and awards. In a word, the people were ready to use any means to besmirch the author of the critical comments in the press.

It was ascertained, for example, that the assertion that "in the past he had been kicked out of the party" simply does not conform to the truth. P. Zheverdan had never been a member of the CPSU, and, consequently, no one kicked him out. The director was required to apologize to P. Zheverdan publicly at a special trade-union meeting. The legal consultant was restored to his status as member of the trade union.

B. Plekhanov, LITERATURNAYA GAZETA
special correspondent

Note by "Man and Economics" Section, LITERATURNAYA GAZETA

Article 49 of the USSR Constitution states: "Persecution because of criticism is forbidden. Persons who persecute others who have come forward with

criticism are to be brought to responsibility"

It would seem that certain administrative workers at the Krikovskoye Production Association of Mines do not understand this or do not want to understand it.

They should be reminded of Leonid Il'ich Brezhnev's words: ". . . There is nothing more harmful to the interests of the party and the nation than attempts to slur over any shortcomings, to evade just criticism, to stifle it, or especially to suppress criticism and to persecute those who come forward with it."

There is absolutely no doubt of the fact that in this instance we are witnesses to the application of drumhead justice because of criticism.

The editorial office of LITERATURNAL GAZETA has asked the republic Prosecutor's Office to say the final word about this matter.

The Prosecutor of Moldavian SSR, State Counsellor of Justice 2nd Class I. I. Cheban, replied that he has issued a protest against the minister's order as being illegal. In the protest it was stated:

"By verification of P. L. Zheverdan's letter which was carried out by the republic prosecutor's office, it was established that the ministry did not have sufficient justification for applying to him the extreme measure of disciplinary action. There was no substantiation for the statement in the order that Zheverdan has an unconscientious attitude toward the execution of his duties, inasmuch as during the entire period of his work he did not have any disciplinary punishments, but, on the contrary, had constantly been commended. Zheverdan's firing was carried out not only without sufficient justification, but also in violation of the legally stipulated deadline, as a result of which the order is illegal and is to be rescinded.

However, on 13 August 1979 Minister V. Akinfiyev rejected the prosecutor's protest.

Our special correspondent was sent to Kishinev again. He had a meeting with the minister. In the discussion with the correspondent, V. Akinfiyev stated that he had acted in that manner only because P. Zheverdan had previously committed a serious misdemeanor and had been given administrative punishment. Yes, that had been so. But more than ten years had passed since that time. During that period P. Zheverdan had graduated from the university, had acquired a new specialty, and during the entire period of working at the association, starting in 1972, he had not had any punishments.

At this point we would like to make a digression of a general nature, and to speak about the right to criticize. We might note first of all that our Constitution states with the utmost clarity, "Every USSR citizen has the right to send to state agencies and public organizations any

proposals concerning the improvement of their activity, and to criticize any shortcomings in their work." Every citizen! But the mail to the editorial office attests to the fact that certain officials attempt to deflect just criticism away from themselves, citing various failures in work or various personal shortcomings of those who come forward with the criticism. And that apparently is what happened in this instance.

However, on 16 August 1979 the minister of the building-materials industry of Moldavian SSR reconsidered his decision and issued Order No. 154, which restored P. Zheverdan to his previous job: he was paid his wages for the three months of forced absenteeism.

That is a completely reasonable and legal finale!

5075

CSO: 1821

CONSTRUCTION, CONSTRUCTION MACHINERY, AND BUILDING MATERIALS

GEORGIAN RURAL CONSTRUCTION ORGANIZATION IMPROVED BY CENTRALIZATION

Moscow STATE NAYA GAZETA in Russian 8 Dec 79 p 2

[Interview with Georgian SSR Minister of Rural Construction I. Kharatishvili:
"Unity of Goals"]

[Text] In 13 years of the Georgian SSR Ministry of Rural Construction's activities, its trusts and PMK's [mobile mechanized columns] significantly enlarged the output capacities of the kolkhozes and sovkhoses, and improved the cultural and personal conditions of rural laborers. Homes with a total area of 750,000 square meters, schools with a total capacity of 150,000 students, and children's nurseries and day schools caring for 6,000 children have been put into operation. Other facilities now operational include buildings for cattle, pigs, and sheep (a capacity of 672,000 head), poultry factories (10.6 million hens), mineral fertilizer warehouses (140,000 tons), and tea factories (processing 55,000 tons of green tea per season), and many others.

The ministry is devoting a great deal of attention to personnel training and indoctrination. It supports three state vocational-technical schools. In 3 years of the five-year plan about 5,000 persons were trained by the entire system, and more than 3,000 upgraded their qualifications. More than 300 teachers are working with young people. There are 283 contracting teams laboring at the construction sites, which is more than 40 percent of the total number of teams.

Two hundred fifty-one persons were awarded orders and medals for successes in the Ninth and in 3 years of 10th Five-Year Plan, team leaders D. Bogdavadze and P. Turkishvili earned the exalted Hero of Socialist Labor title, and T. Dzidziguri received the USSR State Prize.

Each year the collectives of the Georgian SSR Ministry of Rural Construction's subdivisions increase the pace of their work, raise labor productivity, and insure that facilities are put into operation. The ministry has been the initiator and winner of socialist competitions among subdivisions of the USSR Ministry of Rural Construction many times.

Considering the interest the public has in the working experience of the Georgian SSR Ministry of Rural Construction, I. Svirin, a special correspondent of STROITEL'NAYA GAZETA, asked Georgian SSR Minister of Rural Construction I. Kharatishvili to reply to a number of questions, including those that are now generally referred to as urgent in light of the importance placed upon them by the CPSU Central Committee and USSR Council of Ministers decree on improving the economic mechanism.



Correspondent: Iosif Alekseyevich! Looking into the future, we naturally place a value on accumulated experience. How are you using it in application to the new tasks?

Kharatishvili: The experience we have accumulated is a truly priceless possession. Embodying within itself the knowledge and proficiency of the innovators, it permits us to utilize our internal reserves more fully and to concentrate our attention on the key issues of production. Today, as is stated in the party and government decree on improving the economic mechanism, and as was emphasized at the November (1979) Plenum of the CPSU

Central Committee, we can be truly successful in construction only by raising the effectiveness of production, by improving planning and control, and by achieving a high end result on this basis. We are pleased by some of the indicators. As an example the annual increment of construction and installation performed by the ministry is averaging 17 percent. This is significantly more than the average for the USSR Ministry of Rural Construction. We are also surpassing the target for growth in labor productivity. In 3 years, for example, it has been 25 percent; compare this with the 32 percent planned for the entire 10th Five-Year Plan. Here as well, we are in the lead. But when we look at the output of enterprises of the construction industry base, we find that per ruble of construction and installation, it does not even reach the average levels of the sector.

Correspondent: What is the cause behind this?

Kharatishvili: Development of the material-technical base is behind the dynamic growth of contracting activities. Not enough capital was invested into the construction of construction industry enterprises. True, the situation has recently gotten better. We hope to bring the base up to where it should be in the next five-year plan. But inertia is still making things difficult. We would especially like to develop the capacities for producing industrial structures out of light concrete, steel, aluminum, and asbestos-cement, and guyed roofs. Such items are already being used today.

Correspondent: Can you tell me how you are using them?

Kharatishvili: In many facilities: In particular the poultry factories in Gamardzhveb, which has a capacity of 4 million broilers, and the factories of Koda, with a capacity of 2 million broilers were built out of light concrete structures. The Ochamchira and Tskhakayevskiy poultry factories were assembled out of large asbestos-cement panels containing slag cotton insulation. Metallic structures were used in the construction of the Tamarisskaya Poultry Factory, and the primary winemaking plants of Mukuzan', Terdzhola, and Tsnor'. These facilities also made use of structures developed by the Central Scientific Research Institute of Building Structures, and of three-layer "sandwich" wall panels. Such articles are also to be used in the construction of poultry factories in Kindga and Kaspi with a capacity of 8 million broilers each. Reinforced concrete awnings covering the feeding areas of the Tsnor' Livestock Complex, which has a capacity of 10,000 head of cattle, have been replaced by guyed asbestos-cement roofs.

Now that production of polymer concrete floor tiling for livestock buildings has been organized, the work can proceed on an industrial basis. We are using this material to replace wooden flooring. Considering the scarcity of timber, this is a good substitution. I should add that the tiles last much longer than wood.

We have started producing prestressed keel-shaped 3 x 18 meter shell panels and 3 x 12 meter hyperbolic shell panels. They significantly reduce labor outlays and metal consumption. We have introduced polyethylene air ducts into livestock buildings. They do not require painting, they are easy to install, and they result in a metal savings of 13 kilograms per linear meter.

Correspondent: From just what you have said so far, we might conclude that you are not living so poorly.

Kharatishvili: But we are not living so richly either. I would not want it believed that our successes were so easy. There was much that we had to suffer. Shortages of structures, materials, and time forced us many times to arrive at concepts which should have been utilized in the plans long ago. Sometimes the plans we receive do nothing but frustrate us, even though they had been paid for from the generous coffers of the client. Why, for example, do the plans insist on enclosing our chicks within thick reinforced concrete structures in a climate of the sort we have here? And put up the walls we must. Meanwhile the facilities made of progressive structures that I mentioned above are for practical purposes ideal cases, in which we were able to persuade the client through lengthy debate and statement of fact to agree that we should be erecting lightened buildings.

Moreover by having the manufacturing plants deliver progressive structures we have created conditions permitting the team, PMK, installation and construction associations, and trust collectives to complete their plans, and we have gone a long way in reducing construction time.

Correspondent: Iosif Alekseyevich, you speak critically of the concepts embodied within the plans. But are there really no plans that do deserve a perfect grade?

Kharatishvili: Of course there are. And there are many of them. Take as an example the plans for the geothermal hothouse in Ochamchirskiy Rayon, at the Kachretskiy Baking Combine. These are modern complexes embodying the best planning concepts. They are fully prefabricated. The hothouse, which has an area of 6 hectares, is assembled out of light metallic structures and glass. This automated enterprise was built by the collective of Trust No 8. It is highly economical: Utilizing heat from hot springs, we have avoided the need for building an expensive boiler plant and, naturally, the operators need not consume fuel to grow vegetables, and they are able to harvest several yields in a year. The planning and construction experience accumulated in Kindga has been used by the Abkhas SSR to develop a high-capacity geothermal hothouse combine covering an area of 54 hectares.

Correspondent: You have altered the structure and management of rural construction. Could you describe the changes in greater detail?

Kharatishvili: In our republic, rural construction is tending toward integrated organization. However, considering the multiplicity of organizations concerned with rural construction the most important issues pertaining to construction planning and to development of the infrastructure have not always been solved with a consideration for complete development of a particular region as a single whole. Presence of a complex administrative hierarchy has made the organizations economically isolated, and it has undermined the principle of one-man command by the general contractor. In the end, this has resulted in the creation of a considerable number of obstacles to implementing the plans for commissioning new facilities, which led to extremely great difficulties in rural development.

Owing to help from the Georgian SSR Communist Party Central Committee, the republic government, and the USSR Ministry of Rural Construction, today our ministry is the sole general contractor for rural construction. Its organization includes general construction and specialized trusts, and the republic Gruzmezhkolkhozstroy Association. These organizations, which are typified by pronounced internal specialization, are not some sort of independent "organism"; instead, they are mutually associated units of the same system. It has now become possible to implement a unified technical policy. The volume of work done by subcontractors outside this organization does not exceed 1.5 percent of the total volume of special work done by the ministry today. Thus rights have been strengthened, obligations have grown clearer, and the responsibility of the ministry as the general contractor for integrated rural construction has risen.

Correspondent: Inclusion of Gruzmezhkolkhozstroy into the Ministry of Rural Construction at first reduced the production potential of the state trust somewhat. Not every business manager would find the civic courage to take such a step.

Kharatishvili: I think you might be exaggerating the civic courage that was required. True, the republic interkolkhoz association was missing strong organizations and a good production base. We were aware of its limited potential. But the moment we set the goal of becoming the only rural contractor, we could see no solution other than to place Gruzmezhkolkhozstroy in the ministry's organization. If you forgive any inaccuracies in the analogy, let me say that were a person to begin thinking from his very first step that he would fall and break his nose on the next step, he would never learn to walk. What we needed was not a cumbersome and sluggish interdepartmental system, but rather a unified mobile and flexible rural construction organization. This is why we purposely assumed a strategy that would cost us some losses.

Our concentration on future benefit was rewarded. I have already mentioned that it has become easier to implement a unified technical policy, and that it has now become possible to develop, in integrated fashion, the enterprises and bases of both the state and the interkolkhoz organizations following a single plan, and to specialize them. Thus we created the prerequisites for merging state ownership with kolkhoz cooperative ownership.

Correspondent: How successfully are state and cooperative principles of management coexisting?

Kharatishvili: They are coexisting well. A congress of authorized representatives from the interkolkhoz construction organizations elected a council, and it appointed the republic minister of rural construction as its chairman. The Georgian SSR Council of Ministers, meanwhile, gave the chairman of the Kruzmezhkolkhozstroy Association's board of directors the position of deputy minister and member of the governing board of the Ministry of Rural Construction. The benefit from this is mutual. While in the entire Ninth Five-Year Plan we produced a little more than 600,000 cubic meters of prefabricated reinforced concrete, today we produce 250,000 in just a single year. We have started maneuvering equipment, manpower, and material resources more and better. They are now channeled primarily toward facilities already under construction. Specialized state trusts do work on both the rural facilities and interkolkhoz facilities. In comparison with the situation before reorganization, the amount of work done by kolkhoz builders increased last year by almost a half.

Correspondent: Iosif Alekseyevich, we can see that the road being traveled by the builders is not strewn with roses alone. But practice is the most objective judge. It assures us that the new line you are following now is good. What will be your next step?

Kharatishvili: According to the estimates, the volume of contracted work handled by the ministry will grow by more than one and a half times in the 11th Five-Year Plan in comparison with the 10th. Although the program is tentative in nature, nothing has been forgotten in it: We will build and reconstruct livestock complexes and farms, poultry factories, combined feed plants, tea factories, wineries, fruit and vegetable processing enterprises, storehouses and refrigeration plants, homes and hospitals, children's nurseries and day schools, construction industry and nonmineral quarry enterprises, and roads. Such is the republic agroindustrial complex. Yes, I am not exaggerating, it is in fact a complex. Can we say that we already have a mechanism, tuned in all respects, for controlling the affairs of this complex? Let me say that we are considerably closer to our objective than we were a few years ago. In the republic, the Ministry of Rural Construction is the sole contractor, and the Ministry of Agriculture is the sole client. As a rule we work well together, in the same key. But does the client always allow us to work in our area in the way we know how? No. For example, need I prove that a facility cannot be put into operation if all of the equipment required is not delivered on time? Apparently so, and constantly. Whenever our negotiations with the client reach a dead end, we ourselves have to communicate with the supplier plants. I must admit, however, that the client does on occasion recognize his indebtedness to the builders but this does not always make things easier.

I must confess that critical situations sometimes do arise at the construction sites at the fault of the planners as well. I am referring to lack of integration in the planning, failure of the deadlines for issuing the documents, and their poor quality. Whenever we talk about this with the planners, in the best case they modestly turn their eyes aside.

In my opinion departmental regulation has grown complex. This growth in complexity is often explained by objective difficulties associated with the swift increase in construction volume. Now that is the easy way out! This creates the temptation of explaining away the mistakes in organizational and technical management with objective causes, an approach that has often been taken.

We have learned a great deal from our experience. The republic Ministry of Rural Construction has generalized it, and it is now proceeding to improve the organization of construction production further. Our goal is to surrender our construction projects to the client fully ready for operation, as is required by the CPSU Central Committee and USSR Council of Ministers decree on improving the economic mechanism.

11004

CSO: 1821

CONSTRUCTION, CONSTRUCTION MACHINERY, AND BUILDING MATERIALS

CARTOON SCORES UNFINISHED CONSTRUCTION PROJECTS

Minsk SEL'SKAYA GAZETA in Russian 27 Dec 79 p 4

In a number of instances construction workers pass on unfinished start-up projects



"Hold it up a little longer--the commission is signing the certificate..."

Artist: A. Garmazy

CSO: 1821

CONSTRUCTION, CONSTRUCTION MACHINERY, AND BUILDING MATERIALS

CARTOON CRITICIZES EQUIPMENT IDLENESS, INEFFICIENCY

Minsk ZVYAZDA in Belorussian 12 Dec 79 p 2

[Article: "Unemployed Heavy Equipment"]

[Text] The equipment at Mogilev building sites is poorly utilized. An especially alarming situation has developed at a construction sites of the silk mill, bakery and Gosplan Office date processing centers. Downtime of excavators, bulldozers, tower cranes and loaders add up to 50-90 percent of the shift time. The reason is the absence of a labor front, low labor and executive discipline, and total lack of control.

The impression has been created that Comrades Belka, Strukachow, Lyaykowski and Karanevich, managers of construction trusts No. 12 and 17, have completely dissociated themselves from this affair.

They have not displayed any initiative or drive with regard to providing continuous work for machines and heavy equipment, and have refrained from imposing harsh conditions on those who are sloppy and wasteful in fulfilling their official duties.



Foreman: So why is this heavy equipment trying to get us? Section Chief: Can't you see? They're asking for work. Only their efforts are useless.

CSO: 1521

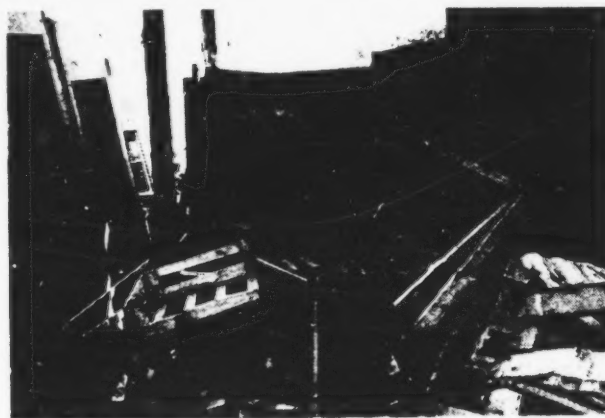
CONSTRUCTION, CONSTRUCTION MACHINERY AND BUILDING MATERIALS

PHOTO ILLUSTRATES WASTEFULNESS IN CONSTRUCTION

Minsk SEL'SKAYA GAZETA in Russian 5 Dec 79 p 4

[Photo: "A Display of Wastefulness: Words Are Unnecessary"]

[Text]



Caption: Look at the photograph. It's clear to you without words how Mobile Mechanized Column No. 4 treats building materials. It is not clear just how the "Minsk Rural Construction" Trust regards such a disgrace. We need to shed some light on the subject!

CSO: 1821

ELECTRONICS AND PRECISION EQUIPMENT

CASSETTE TAPE RECORDER, STEREO RADIO RECEIVER DESCRIBED

New Portable Tape Recorder

Moscow GOVORIT I POKAZYVAYET MOSKVA in Russian 10-16 Dec 79 p 19

[Text] A new portable II-Class cassette stereo tape recorder called "Elektronika-203-Stereo" has been developed and will be produced at the end of this year [1979].

This tape recorder was developed based on the widely known mono(phonic) stereo tape recorders "Elektronika-301" and "Elektronika-302." Judging by its dimensions, the 203 is larger than the 302. It has a similar ac/dc power supply capability, using either six cells of the 373 or 343 type, current from power mains supplied at 127/220 volts, or a car storage battery. However, this tape recorder has better technical features than the preceding models, including: An operating range of (reproducible) frequencies from 63--12,500 Hz; an interference level not exceeding 46 dB; a maximum power output of 1.5 volt-amperes for the internal speaker; and 2 x 8 volt-amperes for the external sound system; a detonation coefficient not exceeding 0.3; a range of tone control for low and high frequencies not less than -10, + 5 dB; dimensions of 292 x 378 x 98 mm; and, finally, weight not exceeding 4.5 kg. The "Elektronika-203-Stereo" tape recorder incorporates a number of design innovations, giving it an advantage over other models in this class.

The capability of automatic as well as manual control of the recording level is a feature of the tape recorder. Moreover, in order to eliminate sound recording distortion while recording, the automatic recording level control (ARUZ) is structured so that the sensitivity of the stereo channels is maintained identically and its magnitude is determined by the maximum level of the signal in the channels. When adjusting manually, control is exercised according to the recording level indicator, which automatically switches to the channel with a greater level.

A step tone-control is incorporated in the unit. This allows the user to receive nine frequency characteristic variants with rise and attenuation according to low and high frequencies.

The step control ensures operational vibration tone control while preserving the high identity of the frequency characteristics of the channels. Moreover, the position of the button for tone control simulates the configuration of frequency characteristics.

The unit includes: An auto stop on the tape recorder which shuts the tape recorder off at the end of the cassette tape; a pause button; and a mono-m de recording button.

When playing recordings through the internal speaker, the sum of the signals from the two stereo channels is fed into it. When using batteries, a power-saving system can be turned on.

The price of a new tape recorder is R290 (excluding speaker cabinets); it is R400 with the speaker cabinets.

Stereo Radio Receiver

Moscow GOVORIT I POKAZYVAYET MOSKVA in Russian 7-13 Jan 80 p 20

[Text] The "Leningrad-010-Stereo" portable stereo transistor radio [receiver] of the highest class ensures high-fidelity reception of mono(phonic) radio programs in the long-wave [DV], medium-wave [SV] (I-II), short-wave [KV] (I-V) and ultra short-wave [UKV] bands, as well as stereophonic radio programs (by a system of polar modulation) in the UKV band.

The radio has high response discrimination, a better-than-usual interference-killing feature, and ensures high-fidelity reproduction, via remote speakers, of all possible programs, including selections played on tape recorders, record players, etc.

The radio features:

Two inner magnetic antennas for reception in DV and SV ranges;

Two retractable rod antennas for reception in KV and UKV bands;

Electronic tuning and AFC in the KV and UKV bands;

Four fixed tuners in the UKV range and in the II-V KV range, with independent tuning in every band;

Silent tuning in all bands;

Indicator showing that broadcasts being received in stereo;

Separate tone quality controls for higher and lower audio frequencies;

"Wide band" fixed positions, "narrow bands," "local reception";

The possibility of manually switching "mono-stereo--pseudostereo" operations with the reception of sound in three dimensions while receiving mono musical programs ("pseudostereo" mode);

Two needle indicators which ensure precise tuning during reception and also monitor the power cells' discharge rate;

A built-in battery charger for boosting battery charges from power mains or from an external power source with the automatic cutoff of recharging; and

A system for dial and indicator illumination.

The sound system of the radio consists of two small remote speakers which are fastened to the receiver from the bottom when transporting.

Basic Data

Sensitivity no worse in these bands:

with internal magnetic antenna, millivolts/m:

for DV--0.8

for SV--0.5

with retractable rod antenna, microvolts/m:

for KV--50

for UKV--5

Ranges of reproducible audio frequencies in bands, Hz:

DV, SV, KV--80 ...6300

UKV --31.5...15,000 (for a linear result)

Maximum power output, Watts:

with battery-supplied current---1.5

with a/c---4.0

Voltage:

from batteries 9

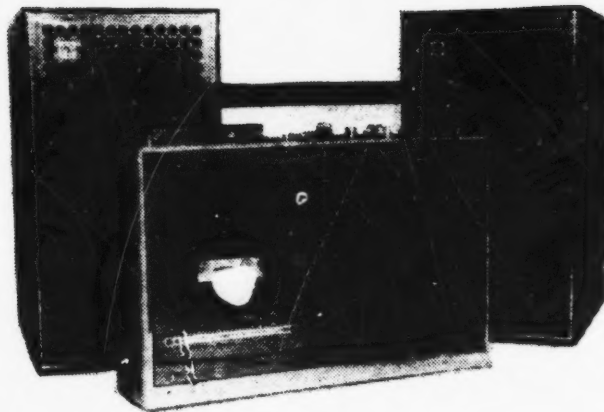
from a/c 127/220

Dimensions (of the radio)

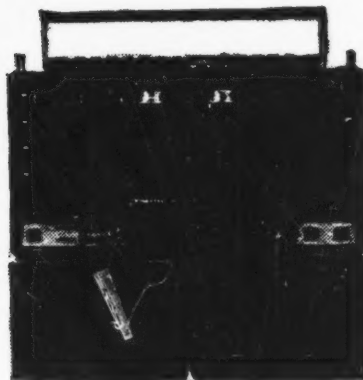
430 x 388 x 150 mm

Weight (with power supply) 9.5 kg

Price R450



Elektronika-203-Stereo



Leningrad-010-Stereo

CSO: 1821

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JPRS 75207

27 February 1980

USSR Report

INDUSTRIAL AFFAIRS

No. 532



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REPORT DOCUMENTATION PAGE		1. REPORT NO. JPRS 75207	2.	3. Recipient's Accession No.
4. Title and Subtitle USSR REPORT: INDUSTRIAL AFFAIRS, No. 532		5. Report Date 27 February 1980		
7. Author(s)		6. Performing Organization Rept. No.		
9. Performing Organization Name and Address Joint Publications Research Service 1000 North Glebe Road Arlington, Virginia 22201		10. Project/Task/Work Unit No.		
		11. Contract(G) or Grant(G) No. (C) (G)		
12. Sponsoring Organization Name and Address As above		13. Type Report & Period Covered		
		14.		
15. Supplementary Notes				
16. Abstract (Limit 200 words) This serial report contains information on the development and productivity of the automotive and tractor industry; electronic and precision equipment; metalworking equipment; construction equipment and building materials.				
17. Document Analysis a. Descriptors USSR Automotive Industry Agricultural Machinery Construction Construction Materials Construction Equipment Electronics Industry Metalworking Equipment Economics				
b. Identifiers/Open-Ended Terms				
c. COSATI Field/Group 2C, 5C, 13C, 13F, 13H, 13I, 13M				
18. Availability Statement Unlimited Availability Sold by NTIS Springfield, Virginia 22161		19. Security Class (This Report) UNCLASSIFIED		21. No. of Pages 99
		20. Security Class (This Page) UNCLASSIFIED		22. Price

27 February 1980

USSR REPORT
INDUSTRIAL AFFAIRS
No. 532

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AUTOMOTIVE AND TRACTOR INDUSTRY

KAMA TRUCK PLANT PROPOSES FULL FACTORY SERVICING

Moscow TRUD in Russian 20 Jan 80 p 2

[Article by A. Malyshev, deputy general director of KamAZ: "Firm Servicing of Motor Vehicles"]

[Text] During the current five-year plan, the Kama Association [KamAZ] will produce several hundred thousand trucks, tractor units, dump trucks and diesel engines. The new make of vehicles have proven dependable in operation and capable of achieving high efficiency in the transporting of national economic freight. Of the 800,000-825,000 trucks planned for production by the nation's plants this year, the KamAZ trucks will be 14 percent, and in terms of the freight carrying capacity their proportional amount will exceed 30 percent.

The low axle load which does not exceed 6 tons makes it possible for the KamAZ trucks to be used by the entire road network without damaging them. Inexpensive fuel, maneuverability, easy driving, the comfort of the driver's seat, and the economic consumption of spare parts--all of this is to the liking of the transport workers. The quality level of the vehicles produced by the association can be seen in the fact that many of them have already been driven 300,000-350,000 kilometers without any overhaul.

However sooner or later the moment comes when the vehicle must be overhauled.

First-rate equipment requires first-rate and highly skilled maintenance. It cannot be overhauled under primitive conditions, each doing what he can. This, as they say, ends up expensive. Let me give a few figures. The life of an engine after an overhaul done at a specialized plant is 80 percent of the life of a new one, while the life of one repaired in small shops is just 34-45 percent. Thus, from the increase in the life of the power units overhauled on an industrial basis at just one plant turning out 100,000 motors a year it is possible to obtain an economic effect equal to the operation of 40,000 new vehicles.

But still the basic share of automotive repairs is done at poorly equipped small enterprises which operate at a loss. The system employed up to now for supplying trucks with spare parts through the Goskomsel'khoztekhnika [State Committee for Agricultural Equipment] services has proven inflexible and does not guarantee the complete satisfying of the demand of numerous motor transport enterprises.

The desire of the Goskomsel'khoztekhnika organizations to fulfill the sales plan at any price has led to a situation where at many warehouses the above-standard spare parts inventories exceed the year's supply. According to the data of the Gor'kiy design and engineering institute of the USSR Minavtoprom [Ministry of Automotive Industry], 220 million rubles worth of spare parts are produced annually above the norm. At the same time, thousands of vehicles stand idle because of the parts shortage. For example, in 1959, for this reason 5.3 percent of the KamAZ fleet did not operate. Each year the state loses up to 1.5 billion rubles from the scattering and excessive stockpiling of spare parts.

The solution lies in developing centralized repairs. A higher technical readiness of the automotive fleet can be achieved only in an instance if the plants directly supply their vehicles with spare parts, units and assemblies through an extensive network of specialized automotive centers. Everything should be from the firm, beginning with the planning and manufacturing of the spare parts and ending with their delivery to the consumer.

Moreover, we feel that the plant should assume full responsibility for the vehicle produced by it, and keep track of it not only during manufacturing and testing, but also after the customer has taken it over. This indispensable condition for improving the efficient operation of the KamAZ will be fully observed with the development of a nationwide system of automotive centers belonging to our association. Here they will accept engines and units requiring rebuilding, regardless of the reasons for the breakdowns, and send them to the plants of Minavtoprom. The designers and production engineers will be informed of all defects and failures in order to root out "creeping" defects. The actual consumption of spare parts depending upon the operating conditions of the KamAZ trucks will be studied and analyzed. On the basis of these data, the spare parts should be efficiently distributed to the centers, and corrections made in their production and delivery plans.

The operating experience of such centers has produced good results. KamAZ was the first in the nation to introduce the new customer relations system. At present, in the nation there are over 100 Tsentrkamaz [KamAZ Centers] in operation. And their number is increasing. They will operate in virtually all oblasts of the nation. To some our automotive service system is reminiscent of the VAZ [Volga Automotive Plant] system, but here there are more differences than common features. VAZ is exclusively concerned with the owners of private transport, and where else could they turn for help in

overhauls? But we work with state enterprises which on a planned basis carry out all technical questions involving the KamAZ trucks. And we do not intend to take over from them. Our concern is first of all to provide high quality repairs on the vehicles, as well as check the condition of the assemblies and units of the KamAZ vehicles. We carry out major overhauls on engines as well as individual assemblies and units on an industrial basis similar to mass production. The diesel engine workers have developed the rebuilding of power units. The overhaul of drive axels has been organized at the parts plant.

We see a double benefit from such a procedure. In the first place, factory overhaul guarantees a longer service life for the vehicle. Moreover, the "firm" servicing provides a quicker disclosure of the true guilty parties of the problem. Secondly, it becomes easier to figure the real demand of the various regions for spare parts for our vehicles. It does happen that in the motor pools KamAZ assemblies are installed on "foreign" units.

All of this is well and good. But we are still working in amounts which clearly do not meet the needs of the sectors using the KamAZ vehicles. In 1978, 4,500 engines were overhauled, and since the starting up of the plant, around 20,000. This is very few. The overhauls must be carried out in temporary facilities. Because of the sharp increase in the fleet of our vehicles, further overhauls on such a "paltry" basis will become impossible.

At present a plant is being built in Naberezhnyye Chelny for the major overhaul of engines and units. The estimated cost of the plant is 125 million rubles. But even it will not solve the problem. It is being built very slowly. The USSR Ministry of Power and Electrification has not carried out the required amount of construction and installation work. In 1978, only 1 million rubles worth of work was completed, and in 1979, 1.5 million out of the planned 11 million. But this is not the only problem. It is essential to build five other plants in different regions of the nation with a capacity of at least 50,000 major overhauls each. Only then can we ensure the overhauling of the 1.5 million large Kama trucks and the million engines for them. In considering the losses mentioned above (1.5 billion rubles annually), the cost of building the plants will be repaid shortly after they are completed. As one can see, the game is worth the candle.

But still the increase in the KamAZ fleet as well as the "aging" of the previously produced vehicles raise a multiplicity of problems. Our enterprises are already experiencing an acute need for the major overhaul of electrical equipment, brake systems and a number of other assemblies. We are unable to provide these repairs. Also disconcerting is the fact that certain supplier plants such as the Borisov Avtogidrosilitel' [Automotive Hydraulic Actuator] Plant, the Yaroslavl' Diesel Equipment Plant, and the Michurinsk Motordetal' [Automotive Part] Association supply us with poor quality products and this increases the scarcity of such parts as belts,

packings, gaskets, light bulbs and filters. These questions must be solved in parallel with the expansion of the network of automotive centers.

Another problem is that for carrying out routine repairs on the KamAZ vehicles, because of their design features, special garage and diagnostic equipment and hydraulic and pneumatic tools are required. No plant in the nation produces them.

One other important circumstance. Many of the KamAZ vehicles break down ahead of time due to the unavailability of the recommended grades of lubricants for the enterprises. The oils, lubricants and special fluids for them are not available at any public service station and at a majority of the petroleum bases of Glavneftesnab [Main Administration for the Supply of Petroleum Products]. The drivers are forced to supply the vehicles with haphazard substitutes at their own risk and peril.

The firm servicing of the KamAZ vehicles and the cooperation between manufacturers and operators are a very promising thing. Such cooperation will provide the best utilization of the motor vehicles and will help to raise the efficiency of transport operations. And this at present, as L. I. Brezhnev said at the November (1979) Plenum of the CPSU Central Committee, is one of the important tasks.

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CONSTRUCTION, CONSTRUCTION MACHINERY, AND BUILDING MATERIALS

DECREE'S IMPACT ON CAPITAL CONSTRUCTION

Moscow STROITEL'NAYA GAZETA in Russian 16 Dec 79 p 3

[Article by Yu. Khrakovskiy, candidate of economic sciences, in a feature edited by Prof A. Mitrofanov, doctor of economic sciences: "The Five-Year Plan--A Working Plan"]

[Text] The decree of the CPSU Central Committee and USSR Council of Ministers entitled "On Improving Planning and Increasing the Impact of Economic Instruments on Production Efficiency and the Quality of Performance" has set up a system and procedure for drafting multiannual plans. The principal form used in planning the country's economic and social development and the basis of organizing economic activity is to be the 5-year plan. It is to be compiled on the basis of a system of scientifically sound technical-and-economic norms and standards pertaining to types of work, expenditures of labor, raw materials, supplies and fuel and power, and also standards pertaining to the utilization of production capacities and capital investments.

Beginning with the 11th Five-Year Plan USSR ministries and departments and councils of ministers of union republics will be assigned stable 5-year plans for capital construction (with assignments broken down by years) which have been balanced against resources of materials, manufacturing and power generating equipment, labor and financial resources, and also the capabilities of construction and installation organizations.

Plans of contract work will be drafted simultaneously with the drafts of capital construction plans. Their distribution both among contractors and also among clients will make it possible to eliminate all vagueness as to responsibility and to achieve internal consistency and interlinkage, which will make all participants in the investment process more accountable for performance of what has been planned.

The present absence of that kind of linkage and consistency in a number of cases has the result that certain construction sites and projects included in the plans of clients are left out of the programs of construction organizations. In certain cases there are discrepancies between the plans of the customer and the contractor concerning dates for activation and the amount of work to be done at the construction site.

The decree envisages performance of a number of measures aimed at ensuring stability of the 5-year plan and at transforming it into a working document that defines and regulates productive and economic activity of construction and installation organizations and the superior levels of management.

The most important of these measures are the following.

First--maintenance of stable wholesale prices in industry, of estimate prices in capital construction and of freight rate schedules.

Second--planning of existing production and new construction as a unified whole. This means that the volume of production at enterprises will first be planned by virtue of activation of internal potential: introduction of improved manufacturing methods, raising the shift coefficient of equipment operation, and so on. Capital investments to develop the branches of material production will be allocated in 5-year plans for the planned growth in the volume of output and services.

On the basis of this basic principle and also taking into account the need to raise the efficiency of social production, physical resources and equipment and the necessary limits of capital investments, construction and installation work and contract work will first be assigned to the reconstruction and retooling of existing enterprises. Funds to expand existing enterprises and build new ones will be allocated only in those cases when the needs of the economy for the given product cannot be met by existing enterprises even if they undergo reconstruction and retooling.

At the present time the relative share of capital investments going to reconstruction and retooling of existing enterprises is below the figure set in the 5-year plan. The reason is a lack of motivation on the part of builders to execute projects in existing shops, which is considerably more complicated than building new projects, and this lowers their performance indicators, detracts from utilization of construction machines and machinery, increases the relative share of manual operations and makes the operating conditions more difficult. As a result labor productivity drops, and that means less profit and smaller economic incentive funds.

In a number of cases it is also more complicated for customers to carry out reconstruction of an existing production operation than to build a new shop.

The decree calls for a number of steps to be taken to motivate both customers and builders to give priority to projects involving reconstruction and retooling of existing enterprises.

The third measure aimed at transforming the 5-year plan into a working plan is the drafting and approval as part of 5-year plans of lists of existing enterprises scheduled for reconstruction and expansion and also lists of new construction starts on enterprises and installations along with their principal technical-and-economic indicators. The existence of these lists

will substantially restrict the scale of new construction, will make it possible for customers to prepare all necessary project plans and estimates in good time and to deliver them to builders.

On the basis of these lists of construction projects and also the limits of capital investments and construction and installation work, project plans, cost estimates and standard construction times the title list will be worked out over the entire period of construction, with a breakdown of assignments by years.

If work at the site has been done in a smaller volume in the past year than was called for in the title list, the lag is to be made up in the following year. In this respect the decree points directly toward making the 5-year plan a working plan.

An essential factor that will promote stability of the 5-year plan and its transformation into the principal form of planning and a working plan is the decree's instruction to the effect that fulfillment of the 5-year plan is to be evaluated at all levels of economic management in terms of the cumulative total from the beginning of the 5-year period, and the targets of the annual programs are to be set at least at the level of the assignments of the 5-year plan established for that year. This will put an end to the abnormal situation in which every year the drafting of plans begins as it were from scratch and is not tied to the 5-year plan. This leads to a situation at a number of construction sites where annual plans are fulfilled, but the assignments of the 5-year plan for activation of capacities and projects are not fulfilled.

The existence of stable 5-year plans of contract work worked out in detail will create for construction ministries and departments and also their constituent organizations the conditions necessary for timely drafting and fulfillment of plans for development of their industrial capabilities and for enlargement of the capacities of contract organizations in those regions where available capacities are not sufficient to meet the volumes of capital construction planned for the 5-year period.

Enterprises figuring as clients will be able on the basis of stable 5-year plans to prepare fulfillment of the plans in a timely and competent way. Here we are referring to the preparation of technical documentation, orders of manufacturing, power and nonstandard equipment, preparation of the site, and so on. Thus the 5-year plan is becoming a working plan not only for the builders, but also for the clients.

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CSO: 1821

CONSTRUCTION, CONSTRUCTION MACHINERY, AND BUILDING MATERIALS

DECREE'S IMPACT ON PROJECT PLANNING

Moscow STROITEL'NAYA GAZETA in Russian 6 Jan 80 p 3

[Article by V. Alekseyev, chief of the division for standard design preparation and the organization of project planning and surveying work of USSR Gosstroy: "Unused Potential for Creativity"]

[Text] Project planning is an exceedingly important link in the entire many-sided process of creating fixed capital, which is what determines the technical-and-economic level of production sectors and the national economy as a whole. The efficiency of construction and a radical improvement of affairs in that sector also depend to a considerable degree on the planning, organization and quality of project planning work.

Cases are still not uncommon when institutes issue technical documentation of poor quality and do not properly take into account progressive advances of science and technology and advanced know-how. It takes a long time to prepare it, to clear it, and get it approved. Reliable determination of the estimated project cost results in serious disruptions in the process of construction. Schemes governing the development and location of the sectors of the economy, industries and the productive forces among economic regions and union republics have not become the basis for project planning, and as a consequence project planning and surveying work has been planned without the requisite linkage to capital construction plans.

An analysis shows that the procedure for preparing technical documentation has become outdated and is in need of radical modification. The decree of the CPSU Central Committee and USSR Council of Ministers on improvement of economic instruments indicates the principal directions for improvement of cost estimating in project planning. USSR Gosplan has been ordered to draft programs for solving major regional problems and for shaping and developing regional industrial centers and to compile summary capital construction plans for them. Now USSR ministries and departments are to have the assistance of councils of ministers of the respective union republics in preparing schemes governing the development and location of the sectors of the economy and industries and to approve them by agreement with USSR Gosplan. The schemes will serve as the basis of 5-year plans of capital construction and project planning and surveying work.

Compilation and approval by USSR Gosplan of an instruction that states the format and content of these schemes, which are to contain the necessary data on scheduled construction projects, and the procedure for their preparation, clearance and approval will accordingly have to be speeded up. As to format, the 5-year plans are to include lists of new construction projects and of enterprises and installations undergoing reconstruction and expansion along with certain technical-and-economic indicators. On the basis of these lists, limits of capital investments and contract work, project plans and cost estimates, and standard construction times title lists will be compiled and approved as a planning document that will not be changed over the entire period of construction and will be binding upon customers, contractors, planning, financial, banking and supply agencies, and equipment suppliers.

The network and physical plant and equipment of project planning and surveying organizations are to be developed in accordance with the 5-year plans. Definite work is being done along these lines. USSR Gosstroy has outlined a plan containing measures which call specifically for the drafting and revision of a number of normative documents, instructions and manuals necessary to support operation under the new conditions of economic activity.

The subdivisions of USSR Gosstroy, with the help of a number of ministries and departments, scientific research institutes and state project planning institutes are preparing methods manuals on compiling 5-year plans for standard and experimental designing, on the procedure for drafting technical documentation for construction and reconstruction of enterprises in industry and other sectors of the economy and also housing and public works projects and complexes on a competitive basis. In view of the importance and urgency of this work, our interest is aroused by the proposals of specialists capable of performing it effectively. We are therefore following with particular attention the discussion of this topic being conducted in the pages of STROITEL'NAYA GAZETA; I am referring to the article "A Competition of Ideas Is Needed," the collection of articles with the overall title "On a Difficult Search" published on 24 and 26 August and 21 December 1979, and others.

Jointly with USSR ministries and departments and councils of ministers of union republics and with the help of leading institutes USSR Gosstroy has prepared recommendations on solving the entire set of problems in improving cost estimation and project planning. They call for a reduction of the number of stages and the amounts of work and a streamlined process for clearance of documentation, which will make it possible to speed up its delivery considerably. This procedure for project planning has already justified itself in practice.

The intention is for project construction cost to be determined so as to take into account a forecast estimate of changes taking place in current and future price formation, along with performance of tasks to improve the social welfare and consumer services of the workers, to speed up application

of scientific and technical development, nationwide programs for environmental protection, and economy.

According to data of USSR Central Statistical Administration, as of the end of 1978 the country had 1,750 project planning and surveying organizations, whose volume of operations is estimated at 2.7 billion rubles. Over the last 10 years this volume has nearly doubled, and the number of project planners has increased from 589,000 to 811,000, or 38 percent, and the output per person has increased 47 percent. These figures show that more attention should be paid in institutes to raising labor productivity. Its growth can be achieved primarily by improving technology, through extensive introduction of new methods and procedures such as two-dimensional and three-dimensional models, microfilming and electrocopying of drawings, and also the use of new office machines, standard drafting elements, and standard fabrications, parts and assemblies. The computer has a special role to play in solving this problem. Only if all these measures are carried out, and above all if electronic equipment and automatic systems are introduced very rapidly, will it be possible in the near future to achieve the necessary 60-80-percent growth of output. This will make it possible to stabilize the number of project planning and surveying organizations. These tasks can be coped with effectively provided ministries and departments responsible for production of the relevant equipment, materials, computer and office equipment manufacture sufficient amounts of these products.

Much needs to be done to improve the system for standardization [interchangeability and adoption of a standard set of elements] of space-layout and structural design so as to further increase the industrialization of construction, to reduce the labor intensiveness of operations and the materials and metal intensiveness of buildings and structures, and to improve the architectural, esthetic and performance characteristics of projects. The proposals call for more extensive use of standard documentation, which is to be worked out on the basis of the advances of science and technology and is to meet the best examples of Soviet and foreign construction. Here the principal direction is to develop standard designs of individual construction-technology and construction blocs, sections and assemblies, and production lines. This is an improved way of speeding up the practical application of scientific and technical advances.

There is no need to belabor the point that the effort to improve project planning and cost estimation must be systematic and purposive and must be based on a thorough analysis and a summary of the experience acquired and must take into account the forecast development of science and technology. This means that we need a scientific approach in the improvement of methodology, management, organization and automation of project planning. That is why it would be wise to set up a specialized scientific research institute in the system of USSR Gosstroy.

The transition to 5-year planning offers important potential for improving the entire field of project planning in the country. This reorganization to be carried out during the drafting of the program for the new, 11th, 5-year period, necessitates a high level of organization and creative efforts by collectives of institutes in their endeavor to achieve high efficiency and quality of performance.

CONSTRUCTION, CONSTRUCTION MACHINERY, AND BUILDING MATERIALS

MINISTRY'S ATTACHMENT TO THE 'GROSS' CHARGED

Moscow STROITEL'NAYA GAZETA in Russian 9 Jan 80 p 2

[Article by V. Danilov, deputy manager of Trust No 4 of USSR Ministry of Construction, Novocheboksarsk, Chuvashskaya ASSR: "Choosing a Strategy To Meet the Time"]

[Text] At the beginning of last October I had an opportunity to visit Belorussia as part of a delegation of the Chuvashskaya CPSU Obkom and to familiarize myself with the activity of construction organizations under the conditions of the economic experiment. Of course, our delegation did not make the trip out of mere curiosity. Because of the well-known decree of the party and government all construction organizations must begin the transition to the new assessment of their performance--on the basis of commodity construction output--as they become ready and complete this transition in 1981. Subdivisions of the Chuvash regional construction administration are to begin this transition in the very first days of this year.

I remember that in explaining things to us during the visits to projects A. Borshch, Belorussian first deputy minister of industrial construction and at the same time chief of the combine Minskstroy, repeatedly said: "New heights cannot be scaled in construction economics by a mere assault. Our knowledge must be improved. From the specialist in the line organization to the senior manager--everyone must have a clear idea of how to do everything that is constructive and contained in the new system of economic activity."

As a matter of fact in the capital of Belorussia we saw convincing evidence that construction has been organized in an economically sophisticated way. Having achieved a 6-percent annual growth in the volume of work performed, the combine Minskstroy is operating profitably and has stable profit. The rate of activation of fixed capital considerably exceeds the growth in the volume of construction and installation work. Standard project construction time has decreased 14 percent on the average.

The visit in Minsk left a very gratifying impression. We did not see there any abandoned construction projects. Most impressive was the quality of finishing, which is the indicator that disturbs builders the most.

Having set down the features of the Belorussian experiment in my notebook, I mentally compared them to the principal indicators of our No 4 construction and installation trust in Novocheboksarsk. It is a sad contrast for us! Our wages considerably exceed the growth rate of labor productivity. The profit plan is showing up cracks in every seam. The volume of unfinished production is welling and exceeding normal limits.

The people in Minsk began their experiment in 1976. A year earlier our trust converted to the new procedure for planning and economic incentives by order of the ministry. Everything seemed pretty good at the outset. We also set up economic instruments to prevent the scattering of funds over a multitude of projects and to encourage their faster activation. We stopped awarding bonuses for fulfillment of quarterly plans for the gross volume of work. We paid bonuses as a function of the plan for delivery of the phases of construction. The indicator of delivery of phases was to determine the funds we received from customers and the formation of incentive funds in the trust's subdivisions.

We worked out a good system for management of construction that was close to the Belorussian model. And ... we immediately found ourselves in the center of unresolved contradictions.

On the one hand, following the new system, we were supposed to fulfill the plan for completion of phases and projects; otherwise there would be no wages, no profit and no bonus funds. But on the other hand all the superior bodies were interested as before only in the figures on performance of construction and installation work in terms of gross output and the amount of money assimilated.

That very first year (1975) USSR Ministry of Construction converted to the advanced principles of economic activity only a small portion of its construction organizations and for some reason did not even ask them about the economic results of the new orientation. In my view this was the principal error of the ministry.

The inertia of the previous methods of management, the personal lack of confidence on the part of specialists of the Main Administration for Economic Planning, and possibly also a fear of being fully accountable turned out to be stronger than the demands of the times. Evaluation of the performance of construction organizations was still based on gross output. State reporting was not established in the ministry concerning the plan for the sale of the finished output of construction.

Now imagine the situation of the manager of the trust. How is he to manage? If he directs efforts toward fulfillment of the plan for delivery of phases, then the figures for gross output will inevitably "shrink." The ministry imposes strict penalties for that, all the way to stoppage of funds and removal of the manager. If principal efforts are aimed at fulfillment of the overall plan for construction and installation work, then activation schedules will not be met.

It was this second road that was willy-nilly taken by our No 4 construction trust in Novocheboksarsk. Countless boxes of various construction projects sprang up, these were years of deceptive prosperity. Resources and funds for construction and installation were assimilated in tremendous amounts. Our above-plan profit ran to large figures. Somehow it did not occur to us that our real achievements in the future, when the time would come to complete the projects already begun, were going off together with those above-plan profits transferred to the budget.

Now that time has come. On the balance sheet of our trust there is a remainder of unfinished construction at 184 projects in the amount of 23.9 million rubles--almost a year's work program for the general contractor. That means 11 workers for each of the unfinished projects.

How does this situation look in a specific case?

Many years ago our trust did the principal reinforced-concrete and fitting work on two salt works. But then for well-known reasons the crew of fitters were transferred to another project. Thus these salt works have been standing there as gloomy monuments to the pursuit of gross output: the metal of the fabrications has rusted, and the pipes of the underground utility mains are silted up. No one wants to even look in that direction now. Where are the additional 10,000-15,000 rubles to be found for putting the project back into shape? This money was not envisaged in cost estimates. In order to avoid overexpending wage funds, it would be more advantageous for our construction workers to build another two salt works and never to finish those already begun.

Under the conditions of the Belorussian experiment, when construction time is so lengthy, the bank would be collecting high interest on credit. But it is not just a question of interest rates. At the construction sites in Minsk we did not see a division of work items into profitable and unprofitable. Everything was directed toward achieving the principal target in terms of commodity construction output.

I am convinced that until we get rid of the ballast--"unfinished construction," until we reduce the entire number of projects under construction at the same time to reasonable limits, we will be unable to take advantage of the Belorussian experience for turning attention to the end result, as has been set forth in the recent decree of the party and government and in the conclusions of the November (1979) Plenum of the CPSU Central Committee.

When we definitively drew up the production plan of the trust for the present year, we had to officially close down approximately half of our construction sites after completing mothballing work on them and to bring projects near completion to the point of delivery very rapidly. I hope we will have the support of our ministry in this.

But at present we are carrying out the first precept we heard in Minsk: learn the new methods of economic activity. As of 1 October we organized

three parallel training programs for the management personnel of the trust, its subdivisions and its line organizations.

If from the trust to the ministry we are all aware that the new economic orientation is to be taken seriously, gross output, which we have removed from reporting, will no longer be able to go around by the back door and again take a place in the front row.

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CONSTRUCTION, CONSTRUCTION MACHINERY, AND BUILDING MATERIALS

JOINT RESEARCH EFFORTS BEAR FRUIT

Moscow STROITEL'NAYA GAZETA in Russian 16 Jan 80 p 2

[Article by G. Usov, deputy chief of the Main Administration for Construction in Moskovskaya Oblast: "Lines of Exploration"]

[Text] Today we publish the results of the main administrations participating in the competition for 1979. The ranking is still the same as it was on the basis of the results for the first 3 quarters. Unfortunately, Glavkiyevgorstroy and Glavmosoblstroy were unable to make up in the fourth quarter the lag in the activation of housing.

	<u>Glavmos-</u> <u>stroy</u>	<u>Glavlenin-</u> <u>gradstroy</u>	<u>Glavkiyev-</u> <u>gorstroy</u>	<u>Glavmos-</u> <u>oblstroy</u>
Fulfillment of the plan for construction and in- stallation work (%)	101.4	100.2	89.9	82.0
Activation of housing, floor area (%)	101.2	101.0	86.2	69.0

In the current 5-year period more than 40 institutes have been collaborating with Glavmosoblstroy. They include the Moscow Construction Engineering Institute imeni V. V. Kuybyshev, the Central Scientific Research Institute of Industrial Structures, the Central Scientific Research Institute of Structural Fabrications imeni Kucherenko, the Central Scientific Research Institute of Experimental Planning of Housing Projects, and the Central Scientific Research and Experimental Project Planning Institute for the Organization and Mechanization of Construction and Technical Assistance to Construction. Every year about 800,000 rubles are appropriated to apply new developments.

Last year prizes of the USSR Council of Ministers were awarded for the design and construction of sewage treatment plants with complete biological purification for rural settlements to a group of specialists of PMK [traveling mechanized construction crew]-68 of Mosobl'sel'stroymontazh [Moskovskaya Oblast Construction and Installation Trust], Mosgiproni'sel'sstroy [Moscow State Project Planning and Scientific Research Institute for Rural

Construction] and other institutions. In the 3 years of its existence the PMK has put into service 134 treatment plants to handle between 25 and 1,200 cubic meters today for settlements ranging from 50 to 6,000 inhabitants, respectively. For the sake of comparison: in the 8 years preceding creation of the PMK, 46 treatment installations were built.

Designs have been created in Glavmosoblstroy of fully prefabricated packages of boiler room equipment with DKVR and TVG boilers, which makes it possible to do more assembly off-site. The reduction of labor expenditures per boiler is 28 man-days.

In the present 5-year period five of the main administration's scientific and technical developments have been awarded prizes of the USSR Council of Ministers. Recently a job lasting many years was completed--a system of specialized motor transport equipment was created for hauling prefabricated reinforced-concrete structural elements.

On the basis of the standardization work done to establish standard components and assemblies specialists of Glavmosoblstroy, construction ministries, the Central Scientific Research and Experimental Project Planning Institute for the Organization and Mechanization of Construction and Technical Assistance to Construction, the State Motor Vehicle Inspectorate, and other organizations have recommended for use only 16 of the existing models and 3 modifications of specialized machines which are able to carry more than 10,000 different types and sizes of reinforced-concrete products. According to calculations the annual economic benefit from adoption of the system will amount to about 30 million rubles. An interdepartmental commission associated with USSR Gosstroy has recommended the machines for series production.

I have illustrated only three lines in the search for effective technological solutions on which work has been done by Glavmosoblstroy. The comprehensive research and development plan has defined the 10 most important lines of joint activity of the 4 main administrations.

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CONSTRUCTION, CONSTRUCTION MACHINERY, AND BUILDING MATERIALS

REVIEW OF PRACTICAL USE OF NET OUTPUT INDICATOR

Moscow PLANOVoye KHOZYAYSTVO in Russian No 11, 1979 pp 36-41

[Article by A. Deminov, first deputy chairman of USSR Gosstroy; F. Potapenko, chief of the economic planning administration of Glavmospromstroymaterialy [Main Administration of the Building Materials and Structural Parts Industry of the Moscow City Executive Committee]; and V. Kovalenko, deputy director of the design and technology office of Mosorgstroymaterialy [expansion unknown]]

[Text] The decree of the CPSU Central Committee and USSR Council of Ministers entitled "On Improvement of Planning and Increasing the Impact of Economic Policy Instruments on Raising Production Efficiency and the Quality of Performance" called for the net (normative) output indicator to be put into practice in socialist economic activity. The transition to this indicator presupposes the creation of certain conditions. The preparation of these conditions in the building materials industry began with the experiment that has been conducted since the beginning of 1976.

Moscow's building materials industry, which has been developing predominantly by virtue of intensive factors, achieved important results in raising production efficiency between 1971 and 1978. The volume of industrial output rose 58 percent; labor productivity rose 53 percent, and 92 percent of the entire growth of output resulted from that improvement. Profit and profitability improved considerably. The industry built and put into service 58 fully mechanized shops and sections and more than 200 mechanized flow lines and automatic production lines. Fixed productive capital rose 408.1 million to 700 million rubles.

An extensive program to renew the products list is being carried out at enterprises of Glavmospromstroymaterialy. In that period 2,960 new products have been put into production. Large-size facing tiles, parquet panels, new types of linoleum, built-in furniture, wood-aluminum blocks and many other products and materials have been put into large-scale production.

Considerable work has been done to raise the technical level and quality of the building materials and fabrications produced. Consequently, 98 percent

of the products produced have been classified in the first- and superior-quality categories, and 117 products have been awarded the Quality Emblem.

Application of the advances of science and technology and the performance of measures related to the specialization and concentration of production and to raising the level of its organization have made it possible year after year to reduce production costs and revise wholesale prices accordingly. Between 1971 and 1978 prices of the main administration's products were reduced 74.2 million rubles, and at the present time they are the lowest prices in the country for most types of building materials.

But in spite of the high rates of development and the efficiency indicators attained, the technical potential for production was until recently underutilized. To a considerable extent this was because of shortcomings in the system of planning and evaluation of the activity both of the main administration and also of its enterprises.

It was proposed that the normative net output indicator be used to eliminate shortcomings in the prefabricated reinforced-concrete industry on the basis of an economic experiment to improve planning. We should note that this experiment has been under way at enterprises of other ministries (mostly in machinebuilding). The aim of the experiment is to discover the possibilities of planning the volume of output in indicators that eliminate the use of past labor in assessing enterprise performance and which thereby enhance the motivation of enterprises to raise production efficiency on the basis of their own contribution to the manufacture of progressive fabrications with lower materials intensiveness.

The experiment was conducted along two lines:

- i. discovery of the feasibility of applying the normative net output indicator (instead of gross output) to plan and evaluate the overall volume of production in value terms and labor productivity computed on the basis of net normative output;
- ii. to verify the possibility of planning and evaluating the volume of production of prefabricated reinforced concrete in adjusted cubic meters of physical output (instead of actual cubic meters).

The Administration of the Prefabricated Reinforced-Concrete Industry was chosen as the subject of the experiment; it consists of 24 enterprises with a total volume of production of 4.7 million cubic meters of prefabricated reinforced concrete and a work force of about 20,000 persons. This selection was made not only because it is a leader in the main administration, but also because the shortcomings of the present system of planning have been vividly manifested in the prefabricated reinforced-concrete industry as in no other industry. Moreover, this industry is closely bound up with construction and has a direct impact on project erection time, on the quality of construction, on labor productivity and on other extremely important

technical and economic indicators of construction work. Prefabricated reinforced-concrete enterprises are not only manufacturing fabrications, but they are also responsible for aggregate utility supply of projects in accordance with assembly schedules. Thus traditional cooperative relations are being supplemented by closer technological ties.

Prefabricated reinforced-concrete enterprises manufacture more than 8,500 individual items. It is typical of these enterprises that their product mix and cost structure change rapidly and products are renewed at a fast pace (the entire products list changes every 5 to 8 years).

It is advisable in the prefabricated reinforced-concrete industry to use a system of planning and assessment of enterprise performance which would encourage the following:

- i. strict fulfillment and proportional overfulfillment of plans stated in terms of specific products for all items, which would ensure that all items are available for production of the finished products and would accordingly guarantee regular delivery of fabrications and parts to construction projects;
- ii. regular renewal of the products list so as to take into account the organization of production of more efficient fabrications with lower mass, improved strength characteristics and high level of shop fabrications;
- iii. performance of these tasks accompanied by economical utilization of materials, labor and financial resources.

Preparations were made to conduct the economic experiment in the 1973-1975 period and they were carried out on an interrelated basis. Principal attention in the preparatory period was paid to working out the methodology of the experiment and also to drafting net output norms and coefficients reflecting the complexity of manufacture of reinforced-concrete products. At the same time a broad program to prepare and train personnel was carried out.

The following were adopted in 1975:

- i. methodological guidelines for conversion of prefabricated reinforced-concrete plants to planning and assessment of performance on the basis of the net output indicator;
- ii. net output norms for all types of industrial products (1,071 items) manufactured by these enterprises. The norms were compiled by the method of eliminating material costs from the wholesale price as of 1 January 1975 for each product (since 1 January 1978 the norms have been obtained by averaging the profit per ruble of wages);

iii. methodological guidelines for planning and recording the production of prefabricated reinforced concrete in adjusted cubic meters;

iv. the coefficients of complexity of manufacture of reinforced-concrete products (227 items).

Plans for the volume of production of normative net output and prefabricated reinforced-concrete fabrications in adjusted cubic meters were prepared and approved for 1976 on the basis of these normative documents both for the administration as a whole and for each enterprise. The targets of the volume of production of normative net output in adjusted cubic meters were broken down to the shops manufacturing the final product. This indicator was included among the principal indicators used in awarding bonuses to supervisory and engineering and technical personnel of the shops and the plant administration.

Additions have been made to the method of compiling the technical, industrial and financial plan so as to take into account the need to link net output indicators with the other sections of the plan. Provision was also made for the necessary recordkeeping and reporting of enterprises based on the new indicators. The indicators determined on the basis of gross output were retained as analytical indicators.

One of the typical features of the preparatory period was the extensive participation of enterprise personnel in drafting these documents.

During the period of preparation and conduct of the experiment 164 teams and shifts were converted to cost accounting at the enterprises of the prefabricated reinforced-concrete industry, and in 2 years they saved raw materials and supplies worth 329,000 rubles. A new price list of wholesale prices for catalog products was drafted and approved, individual thrift accounts were put into practice, social development plans of enterprise collectives were prepared for the 1976-1980 period, and the dates for drafting the technical, industrial and financial plans were moved up. Closer attention was paid to the economics of production and economic techniques by engineering and technical personnel, employees and workers. All this beneficially affected the rise of production efficiency and the quality of performance.

In view of the gratifying results of the experiment, beginning in 1978 the main administration evaluated the activity of other industries on the basis of net normative output: woodworking, ceramics, rock products and the industry of synthetic and insulating materials. Thus the activity of all 77 associations and enterprises of the main administration is planned and evaluated on the basis of net normative output; they have a total work force of 70,000 and their commodity output is worth more than 900 million rubles per year.

Of greatest interest are the results of work done under the new conditions by enterprises of the prefabricated reinforced-concrete industry. They have successfully fulfilled plan assignments and exceeded the planned growth rates of the principal technical-and-economic indicators in the 1976-1978 period. The entire growth of output was achieved by raising labor productivity, which made it possible to make 2,180 workers available for other work.

Fulfillment of the plan for the products list was improved. The number of items on the list for which the plan was fulfilled increased 30 percent between 1976 and 1978. Moreover, the level of plan fulfillment for the most important items increased from 66 to 100 percent. The relative share of items fulfilled increased from 67 to 95 percent, and the level of plan fulfillment in terms of the products list increased from 97.5 to 99.5 percent for the industry as a whole.

The output plan was entirely fulfilled with respect to the given products list by 21 of the 24 enterprises. Times required for aggregate utility supply of apartment houses were shortened: by 11 percent for the 12-story catalog series, by 18.5 percent for the 14-story houses in Series I-209A, and 22 percent for schools.

The economic experiment helped in putting progressive fabrications into production. In the 1976-1978 period enterprises manufacturing prefabricated reinforced-concrete put 2,100 new products into large-scale production (an average of 700 products per year), and as a rule this meant reduced consumption of concrete and metal; this is compared to the 352 products put into production in 1975. The output of products bearing the Quality Emblem increased fourfold.

Organization of the output of fabrications representing lower materials intensiveness, adoption of progressive manufacturing processes, improvement of production, and closer attention to economy have made it possible for prefabricated reinforced-concrete enterprises to save 72,000 tons of cement and 11,000 tons of metal in 3 years. The materials intensiveness of products manufactured in the 1976-1978 period dropped 3.7 percent from the 1975 level, which represents a saving of 5.1 million rubles. The downward tendency of materials intensiveness of the products produced is also confirmed by data on the average product volume. Whereas in 1975 it was 0.638 cubic meter, in 1978 it dropped to 0.6 cubic meter, or 6 percent.

As for putting a new list of products into production with higher labor intensiveness, normative labor intensiveness of the entire volume of production rose 3.3 percent between 1975 and 1978. Thus the increase in net output is largely explained by the stronger impact of this factor.

At the main administration's enterprises the reduction of the labor intensiveness of products previously manufactured continued during the period that the economic experiment was in operation. Whereas the plan for net

output was overfulfilled for the 3 years, the savings on the wage fund was 322,000 rubles.

Under the conditions of the experiment the net output indicator was used to plan and evaluate the volume of production in value terms and labor productivity, to monitor expenditure of the wage fund, and to make additional transfers to incentive funds for overfulfillment of the plan.

The advantages of the net output indicator were manifested most fully in connection with the structural shifts in the composition of output.

Under the conditions of the experiment there was much less difference in profitability from product to product. For various products manufactured by our enterprises the ratio of wholesale prices to wages ranges from 30.2 to 2.8, which is a spread of 10.4:1, but when the net output norm is compared to wages, the range is from 5.1 to 1, a spread of 5:1.

Many economists note in pointing to the shortcomings of the normative net output indicator that it is sharply influenced by the differing rates of profitability of products. We can agree with this, though in the prefabricated reinforced-concrete industry this factor was not strongly manifested because the overall level of profitability is low (10.9 percent is the level of profitability computed with respect to full production cost, while it is 26.3 percent when compared to normative net output). Thus it is advisable to base profit not on production cost, which includes material costs, but on the full wage. Implementation of this proposal would make it possible to make normative net output more effective as an indicator. It is also very important that we would then have a system of prices that would reflect more properly the social cost of production of the various fabrications and would encourage the manufacture of progressive products.

This method has been followed in the experimental price list of reinforced-concrete products manufactured by the Design Technology Office of Mosorgstroymaterialy, which was approved on 16 April 1979 by the USSR State Price Committee. For the first time the profit included in the prices and net output norms was defined with respect to wages plus depreciation instead of with respect to the full production cost of the product. In addition to wholesale prices the price list contains the average net output norms of the industry. We thus have a unified methodological basis for arriving at most of the economic indicators of enterprise performance, including the traditional indicators of sales, profit and profitability.

Using net (normative) output as an indicator tightens requirements for stability and fulfillment of planning assignments with respect to the list of specific products. The experience with the prefabricated reinforced-concrete industry has confirmed for this main administration that normative net output is an indicator that is better suited to objective measurement of labor productivity than the other value indicators in use at the present time. The dynamic behavior of normative net output corresponds to the

dynamics of labor intensiveness and evens out to a great extent fluctuations in output per worker resulting from the differing materials intensiveness of products.

Normative net output is a more suitable indicator for monitoring expenditure of funds for wages. The funds released to enterprises according to fulfillment of the plan for net output correspond to their real need for funds to remunerate labor. Normative net output is also an indicator that makes it possible to measure the output-capital ratio more correctly.

The method based on adjusted physical measurement was checked during the experiment in order to study the possibilities of improving the planning and evaluation of the volume of production and labor productivity in physical terms. It has been used extensively in the tractor industry, the motor vehicle industry and the electrical equipment industry. But the adjusted physical unit of measurement used as the basis there often reflects technical parameters (for example, tractor power converted to 15-HP tractors) which do not coincide with the dynamic behavior of labor expenditures. For instance, the power of various tractor models does not coincide to their labor intensiveness. The adjusted physical units built on such a basis do not yield an objective reflection of changes in the level and dynamics of labor productivity.

In the prefabricated reinforced-concrete industry labor expenditures were taken as the basis for measuring adjusted physical units. This makes it possible to achieve the necessary unity between changes in the volume of production and labor productivity in the adjusted physical measurement and dynamics of labor expenditures.

Coefficients of the complexity of manufacture of products, which take into account the labor intensiveness of their production, are used in the main administration. The complexity of manufacture of a product whose labor intensiveness is 5.5 man-hours per cubic meter was taken as the unit of complexity.

During the conduct of the experiment the principal indicator planned and recorded concerning the volume of production of prefabricated reinforced concrete was output in adjusted cubic meters. The indicator of the volume of production in physical units was retained as an analytical indicator in order to balance the volume of production of prefabricated reinforced concrete in the industry as a whole, for the sake of comparison with figures given in adjusted cubic meters, and also to determine the need for physical resources.

Fears that enterprises would strive to manufacture products with higher coefficients of complexity to the detriment of other fabrications were not borne out. The average coefficient of complexity for the prefabricated reinforced concrete industry as a whole averaged as follows over the 3 years: 1.25 according to the plan and 1.26 according to actual results. Deviations

from enterprise to enterprise were also negligible. For example, according to 1978 figures the planned coefficient at the Beskudnikovskiy Prefabricated Reinforced-Concrete Combine was 1.87, while the actual coefficient was 1.87; at the No 2 Reinforced-Concrete Fabrications Combine the figures were 1.78 and 1.78, respectively; at the No 8 ZhBI [Reinforced-Concrete Products] Plant the figures were 0.76 and 0.78, respectively; at the No 22 ZhBI Plant they were 1.34 and 1.41, respectively; and so on.

On the whole we can draw the following conclusions from the results of applying the indicator computed in adjusted cubic meters. This indicator makes it possible to objectively compare the work of enterprises manufacturing different products; it enhances motivation to fulfill the plan for manufacturing products for the entire assigned list; and it guarantees more correct determination of labor productivity in physical terms of measurement.

Calculations indicate that the growth rates of labor productivity computed in adjusted cubic meters coincide by and large with the dynamic behavior of the labor intensiveness of product production. If the growth rates of labor productivity are determined on the basis of value indicators, they prove to be higher. For instance, labor productivity computed in adjusted cubic meters rose 11.9 percent between 1975 and 1978 at the No 3 ZhBI Plant; the increase at the No 8 ZhBI was 3.5 percent; and at the No 18 ZhBI Plant it was 16.6 percent. When average output per worker was computed in value terms, productivity increased 13 percent, 3.6 percent and 17.6 percent, respectively.

For the main administration as a whole labor productivity in adjusted physical terms rose 8.4 percent, while in value terms it rose 11.7 percent. The reason for the difference is that the value method reflects, first, the differing profitability of manufacturing particular products, which to a considerable extent results from their differing materials intensiveness, and second, different methods of computing normative net output and coefficients of complexity of product manufacture. Whereas in the former case the products were defined as individual (based on the costs of each enterprise separately), in the latter case they were average industry costs.

In our opinion the methods of measuring labor productivity we are discussing--the value method and the adjusted physical method--supplement one another and it would be advisable to distinguish between them as a function of the task that is to be performed. In particular, the adjusted physical indicators (adjusted cubic meters) and the value indicators can be used to study the level and dynamics of labor productivity in shops, enterprises and industries producing only prefabricated reinforced concrete.

The experiment at prefabricated reinforced-concrete enterprises of Glavmospromstroymaterialy showed that use of normative net output as an indicator revealed new possibilities for planning. The decree of the CPSU Central Committee and the USSR Council of Ministers dated 12 July 1979 envisaged a

set of measures which make it possible to utilize these possibilities more fully, and this will become the main line of activity of all entities in the economy in coming years.

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CONSTRUCTION, CONSTRUCTION MACHINERY, AND BUILDING MATERIALS

STATISTICAL SERVICE'S CONTRIBUTION TO IMPROVED CAPITAL CONSTRUCTION

Moscow VESTNIK STATISTIKI in Russian No 11, 1979 pp 20-29

[Article by A. Belyakov]

[Text] The party and government are constantly paying a great deal of attention to capital construction; a tremendous construction program has been undertaken in the country. It is sufficient to say that in the 3.5 years of the current 5-year period 425 billion rubles have been invested in the economy; fixed assets put into service amount to nearly 370 billion rubles, which is 31 percent more than in the corresponding period of the Ninth Five-Year Plan.

About 800 large industrial enterprises have been put into operation, including the following: the Kurskaya, Chernobyl'skaya and Armyanskaya nuclear power stations, the Sayano-Shushenskaya GES, the Lisichansk and Pavlodar petroleum refineries, the Kama Motor Vehicle Plant, the Novospasskiy and Navoi cement plants, a wool-spinning mill in Krivoy Rog, and new earthenware and porcelain plants, garment factories, and large packing houses in the cities: Lipetsk, Zhitomir, Volgodonsk and many others.

New trunk petroleum and gas pipelines extending a total of more than 26,000 km have been laid. Construction has advanced successfully on the Baykal-Amur Trunk Rail Line [BAM]. The funds of the state and kolkhozes have financed the irrigation of more than 2.7 million hectares and the draining of 2.5 million hectares which have gone into production.

Housing construction has been carried on on a sizable scale. Housing has been built with total floor space of 355.1 million square meters, or about 7 million well-equipped dwelling units.

At the same time the serious shortcomings in the construction sector mentioned at the November (1978) Plenum of the CPSU Central Committee have not yet been corrected. The principal ones are the continuing growth of unfinished construction and the scattering of funds over a large number of construction sites and projects, so that construction time is protracted and the assignments of the 5-year plan for activation of a number of the most important production capacities and facilities for nonproductive purposes

are not being fulfilled, and the efficiency of capital investments is not high enough.

The decree of the CPSU Central Committee and USSR Council of Ministers entitled "On Improving Planning and Increasing the Impact of Economic Instruments on Raising Production Efficiency and the Quality of Performance" devotes a great deal of attention to the planning of capital construction. It emphasizes the growing role of 5-year planning, which has paramount importance to improvement of management of the economy and especially to proper organization of capital construction. The 5-year plan is to be the principal planning document for all construction sectors; the attention of planning and economic agencies is turned toward making capital construction plans more stable and consistent with the other sections of the state plan.

This gives greater importance to the statistical work of monitoring progress in the fulfillment of 5-year plans for capital investments and activation of capacities in the production and nonproductive spheres. It is important now that the agencies of the state statistical service provide constant observation over the sectoral and regional distribution of capital investments envisaged in the 5-year plan, inform policy-making and planning authorities about possible departures from planned proportions in the development of individual sectors and regions resulting from breaches of planning discipline in capital construction and from nonfulfillment of assignments for activation of fixed assets and capacities. This purpose will be better served if the efforts of statisticians in the fields of capital construction and the industrial sector, as well as other sectors, are united.

In view of the way planning practice has developed, current capital construction plans differ considerably from 5-year plans, mainly because the latter reflect transfers of funds which ministries and departments make to union republics on the basis of shared participation in construction of nonproductive facilities and in that the ministries serve as clients for certain production sectors. A problem that is by no means simple has to be solved together with planning agencies: to achieve comparability of data in reporting on fulfillment of 5-year and current construction plans for various ministries and departments, councils of ministers of union republics and enterprises.

Even in the 1980 plan provision is to be made to speed up the activation of capacities and projects at sites where construction is already under way and the volume of unfinished construction and the number of new construction starts are to be sharply reduced.

Still greater importance is being assumed, then, by the regular drafting and analysis of the data of annual reports of builders reflecting changes in the amount of unfinished construction and its composition by enterprises, ministries and departments, and also the reporting on Form No 8-ks [capital construction], which reflects the distribution of capital investments in plans by construction sites and projects, the portion of the

estimated cost of the construction that has been assimilated, and the concentration of funds at sites and projects begun previously and especially at those scheduled for completion.

More thorough work on these matters should be helped by the introduction of electronics into the processing of reports. A set of routines is now being prepared for electronic processing of the annual reports of builders, and a set of analytical routines is also being prepared in which provision is made for systematic processing of data concerning capital construction and data is furnished that comprehensively reflects the efficiency of utilization of capital investments in the light of the tasks which have been set.

Stating the problem in the sector of capital construction at the 25th CPSU Congress, L. I. Brezhnev said that there must be a change of approach to the planning and use of capital investments and that existing production and new construction must be planned as a unified whole. Capital investments must be appropriated for the planned growth of output rather than for new projects. Physical and financial resources have to be committed first to the retooling and reconstruction of existing enterprises--where production capacities can be expanded without new construction or at lower specific capital cost. On the basis of this fundamentally new principle governing the planning of capital construction the decree referred to above stated that drafts of 5-year plans would envisage capital investments for development of the branches of material production for the planned growth of the volume of output and services. In pursuit of this goal summary plans are to be compiled for reconstruction and retooling of existing enterprises, and priority is also to be given to the allocation of physical resources and equipment to carry out those projects. The funds for construction of new enterprises and expansion of existing ones will be allocated if the needs of the economy for the given product cannot be met by existing enterprises even if they undergo reconstruction and retooling. On that basis USSR Gosplan is to set the limit on capital investments, construction and installation work and contract work covered by physical resources for the 5-year period. Within that limit ministries and departments and councils of ministers of union republics are to distribute capital investments among construction projects, guided by planning balances and computations that envisage maximum utilization of existing production capacities and a saving on capital cost.

In that context the statistical service must be energetic in helping planning and economic agencies to take into account more fully the opportunities and potential at enterprises and ministries when amounts of capital investments are being determined in order to provide the necessary growth of production. Above all there must be an improvement in information on fulfillment of assignments set enterprises and ministries for the growth of capacities by virtue of retooling and reconstruction, and existing opportunities for increasing the relative share of capital investments in those directions must be indicated. Report data show that whereas for the 3 years of the 5-year period taken together the relative share of capital investments for retooling and reconstruction in the total volume of capital

investments for industrial construction rose somewhat (from 13.4 percent in 1975 to 18.3 percent in 1978), there were ministries and departments where it did not rise.

For purposes of preparing this information for fuller analysis of the potential that exists it is worthwhile to recommend that statistical data on capital construction be supplemented by statistical materials on the industrial sector and technical progress concerning the level of utilization of existing production capacities and performance of measures to reequip enterprises and industries, as well as on the benefit resulting therefrom.

The figures in the reports of builders (Form No 2-ks) at present make it possible to systematically and comprehensively analyze changes in the proportions of capital investments by technological purpose. According to the data of these reports the relative share of outlays for equipment in the total volume of capital investments for industrial construction increased from 42 percent in 1975 to 45 percent in 1978.

At the same time the opportunities that exist for raising the relative share of the active part of fixed assets activated and for reduction of outlays for construction and installation work are still not being fully utilized by many ministries and departments and project planning organizations. The reference here is above all to expansion of retooling and reconstruction of enterprises, to increasing the share of equipment that goes to replace outdated equipment in existing shops, and also to using project plans that call for more economical solutions in construction and layout.

It is of paramount importance to improvement of affairs in the construction sector that new and more progressive planning indicators and norms be introduced so as to encourage attainment of a high level of end results by construction industry.

The system of planning and economic incentives in effect at the present time in the construction industry is not sufficiently orienting construction organizations toward attainment of high end results of their work, since that planning and the settlement of accounts with customers are not based on completed enterprises and projects ready for use, but on intermediate stages of work, especially in industrial construction. There is essentially no connection between the indicators of economic performance of construction organizations and the indicators of activation of projects. The principal value indicator is the total (gross) volume of operations. The end product of construction, however, is the fixed capital that is activated.

The decree has anticipated that beginning with the 11th Five-Year Plan 5-year and annual plans will assign to construction ministries and departments, and also to subordinate organizations, not only a target for activation of capacities and projects in physical terms, but also a target for the volume of commodity construction output. This indicator reflects in value terms construction and installation work entirely completed on

finished enterprises or phases, independent complexes and facilities which have been put into operation.

Thus the indicator of the volume of operations of construction and installation work will be organically related to the principal value indicator of capital construction--fixed capital activated. The criterion for assessment of plan fulfillment with respect to this indicator, just as is the case for activation of fixed capital, will be acceptance of enterprises and projects for operation by state commissions and subsequent regular approval of acceptance certificates.

Some experience has already been gained in planning and evaluating the activity of construction and installation organizations on the basis of indicators of commodity construction output. In recent years an economic experiment has been conducted in the Belorussian Ministry of Industrial Construction, the Lithuanian Ministry of Construction and a number of other organizations where a new system of planning indicators and economic instruments has been undergoing development.

An analysis of data on the performance of these organizations indicates the superiority of this system: the proportions of unfinished construction have decreased and project construction time has become shorter; and the indicators of labor productivity and profit have improved. Since outlays for unfinished construction are covered with bank credit, the financial condition of these organizations has improved, and delinquent indebtedness has dropped. There has been an increase in the sum total of material awards paid for scheduled completion, and workers have become more interested in the results of their work.

The experiment which has been conducted has shown, however, that the system of planning and economic incentives introduced can operate effectively only if the system embraces all links in the chain of the construction process and also customers and suppliers of equipment and materials. That is why the decree stated that ministries and departments figuring as clients are to assign targets for the volume of commodity construction output for subordinate enterprises and organizations in the role of builders.

The new indicators are also to be included in statistical reporting. The idea is to include in state reporting of contractors (Form No 1-ks) the indicator of commodity construction output as the principal indicator and the total (gross) volume of operations will be retained in the report only for purposes of reference (it is necessary for determining the need for material and technical resources, the wage fund, working capital and credit). This indicator should obviously be retained for determination of the growth rates of the volume of operations as well. State statistical agencies have a great deal to do together with ministries and departments, main administrations, regional administrations and trusts to achieve reliability of the new indicator and to link and fit it into the planning and reporting of contractors and builders in order to achieve effectiveness of the new indicator and of evaluating the performance of construction organizations in the new way.

Attention is called to the need to create conditions for drafting strenuous and at the same time sound commodity output plans. Ministries, departments and project planning organizations should prepare the set of norms and standards and should determine and identify in itemized lists the volume of construction and installation work for all projects to be put into service, and this should be done not only for the planning year, but also for the 5-year period. USSR Gosplan should prepare the relevant principles concerning methods. The quality and effectiveness of the new indicator will depend on the success of this preparatory work. Here it is important to overcome a certain psychological barrier--the orientation toward gross output which built up over the years. For that purpose the indicator of plan fulfillment for the volume of commodity output both as a whole and also for individual clients is to be emphasized along with the indicator of activation of capacities and projects in statistical and economic information on fulfillment of plans by construction and installation organizations, ministries and departments sent to policy-making and economic agencies.

Successful fulfillment of the plan of scheduled work will in large part be determined by the uniform distribution of the volume of commodity output in the plan. This in turn is related to the planned dates of project activation. Uniformity in the distribution of the volume of work will make it possible to improve the organization of production and of work in the construction industry and to reduce project construction time and the proportion of unfinished construction. It will obviously be necessary to provide statistical observation of the variation of the indicators not only by clients but also by construction organizations.

The effectiveness of planning and of the impact which economic instruments have on improving the end results of the activity of construction organizations--that is now one of the principal topics of economic analysis.

In the 11th Five-Year Plan the transition is to be made to planning labor productivity in the construction industry on the basis of net output (normative) or some other indicator that reflects more accurately changes in expenditures of labor so as to eliminate the adverse effect of the total (gross) volume of operation on the indicator of the growth of labor productivity, which will make it possible to evaluate more objectively the results of the work of each construction collective. We should note that the influence of materials intensiveness on value indicators in the construction industry is very high. For instance, the relative share of material costs in the production cost of construction and installation work is all of 56 percent. Moreover, it varies greatly from organization to organization and depends on the composition (set) of work items and on the various types of materials and fabrications used.

The new indicator will be introduced gradually, as the set of estimate norms is prepared and as the estimated cost of work items on the basis of net output is determined.

At the same time, not only do the new indicators have to be supplemented and the statistics of capital construction substantially improved, but the amount of present reporting also has to be diminished by those topics and indicators which have now lost their relevance.

The performance of the measures envisaged in the decree will make it possible to increase the efficiency of capital investments, the return on every ruble of funds invested. The principal ways of increasing efficiency are to reduce construction costs and construction time, to increase the relative share of outlays for reconstruction and retooling of existing enterprises, to improve utilization of newly activated capacities and to raise the level of profitability of enterprises. Extensive use of the advances of scientific and technical progress in project planning and construction is an indispensable condition for raising the efficiency of capital investments.

The problem of improving the methodology of statistical study of actual economic efficiency of capital investments and of introducing into the practical work of state statistical agencies a system of indicators making it possible to obtain a scientifically sound quantitative reflection of efficiency confronts the field of statistics on capital construction with particular acuteness. Then it would be possible to analyze more thoroughly and fully the situation that has come about in construction, and this will be a substantial aid to policy-making bodies and planning agencies in making their decisions in the domain of capital investments.

Certain steps have already been taken in this direction. A methodology has been developed for determining actual construction time and for comparing it to the standards in effect, and also for determining specific capital investments. Information is accordingly being collected annually for a broad range of enterprises and projects activated at rated capacity. The organization has been set up for obtaining data on project planning time along with data on construction time, this being an indispensable prerequisite for studying the length of the entire investment cycle. Surveys are being regularly conducted on construction time and value of housing and public works projects.

Work on the methodological problems of constructing indicators pertaining to actual payoff periods and coefficients of the efficiency of capital investments at the level of individual enterprises and related groups of enterprises has been an exceedingly important stage along the way of the further rise in the level of statistical work to study the actual efficiency of capital construction. For a number of years this methodology was the basis for assembling data on efficiency of capital investments for industrial enterprises, but in the current year data of this kind will also be obtained for agricultural enterprises.

A methodology is to be developed for determining the indicators of actual economic efficiency of capital investments at the level of the national economy and also at the level of the union republics, the sectors of the

economy and individual industries, as well as ministries and departments. This methodology will make it possible to create an orderly system of hierarchically interconnected indicators that comprehensively reflect the situation as to the actual economic efficiency of capital investments that has come about in the economy.

Because of the increased responsibility of customers and contractors and suppliers of equipment and materials for the timely activation of production capacities and projects, up-to-date information on fulfillment of capital construction plans has a greater role to play. In recent years a number of indicators and new reporting forms have been developed and introduced, making it possible to monitor more closely the course of construction and fulfillment of the plan for activation of fixed assets and capacities, capital investments and also plans of contract work.

Particular attention is paid to information on the construction of projects nearing completion which have great importance to the national economy. A special reporting system has been introduced for such projects on Form No 26-ks (appendix to Forms No 2-ks (periodic) and No 1-ks (periodic)), which builders file jointly with contractors, which enhances their responsibility for the authenticity of the reported data. The processing of these reports by computer has made it possible for the Main Computer Center of the USSR Central Statistical Administration to supply the data even by the fifth of the month following the reporting month.

Information on construction of enterprises and projects using complete sets of imported equipment and also on the basis of compensation deals with firms of other countries and by agreement with CEMA member countries also has great importance.

In order to make all this information more effective statistical agencies must supplement it with a brief description of the reasons for the lag in construction of individual projects, using the reporting figures, which make it possible to study more thoroughly the progress on the most important construction projects and the supply to them of equipment, manpower and structural fabrications, and to conduct periodic surveys of construction projects. We should take into account in this connection that the surveys of reasons for nonfulfillment of plans for activation of capacities indicate serious shortcomings in the supply of manufacturing and power equipment and physical resources to projects near completion. For instance, in 1978 about 20 percent of the projects were not put into service because of a lack of equipment or because equipment deliveries were not complete. That also enhances the role of statistical information on the course of fulfillment of plans for deliveries of equipment and materials to construction as well as the role of retrospective physical balances.

As for statistics on capital construction proper, it obviously is high time to extend to all the most important projects near completion the reporting system now in effect for chemical construction projects on the arrival, installation and activation of equipment (Form No 5-ks chemical industry).

The greater responsibility of enterprises and organizations, ministries and departments for ensuring fulfillment of capital construction plans imparts greater importance to the work done by state statistical agencies in guaranteeing the reliability of reported data. It is very important in this connection to run regular checks on the reporting of builders and contractors concerning activation of production capacities and facilities for housing and cultural and consumer services, as well as the checks of other reported indicators on capital construction, and to increase the level and effectiveness of these checks. At the present time methods manuals are being prepared with a view to improvement of the quality of these checks.

Lists of new construction sites and enterprises which are to undergo reconstruction and expansion will be set forth in the 5-year plan. This will give state statistical agencies the opportunity to improve the organization of reporting on construction progress at the most important construction sites and to provide regular monitoring of fulfillment of specific assignments with respect to activation of capacities and projects.

Experimental tests are now being run on programs for register study of enterprises and construction projects using a unified computer system developed by the Uzbek Central Statistical Administration jointly with the Administration for the Statistics of Capital Construction and scientific research institutes of the USSR Central Statistical Administration. Introduction of a register of construction sites into the practice of processing reports by the computer system of the USSR Central Statistical Administration will guarantee a supply of diverse information on industrial construction projects, including information on assimilation of the estimated cost, the proportion of work done and unfinished construction, construction time, project planning characteristics, and indicators of the actual efficiency of capital investments.

It is becoming especially important to process reports on construction in a regional breakdown and specifically to process reports of contract organizations on their possession and use of production capabilities in developing regions and regions where construction is concentrated.

In the current 5-year plan the lag in development of the construction industry in certain regions of the country is holding back the growth rates of capital investments and is preventing fulfillment of plan assignments for activation of new production capacities.

In 1980 agencies of the USSR Central Statistical Administration intend to take a one-time count of construction and installation trusts and organizations not formed into trusts. This should yield detailed information on the level of development of construction work by republics, krais and oblasts, which will afford planning agencies the possibility of improving the consistency of capital construction plans with the capacities of construction organizations for the 11th Five-Year Plan.

Summary capital construction plans for TPK's [regional industrial center] will be compiled in order to improve regional planning and the location of productive forces. Among the major special-purpose comprehensive programs, whose performance depends in large part on capital construction, the decree names development of the BAM zone. This area adjacent to the trunk rail line now being built will take up approximately one-twentieth of the country's entire area with advanced industry and agriculture. One of the largest industrial projects to be built here is the Southern Yakut TPK.

Supervision over fulfillment of these plans needs to be instituted. Corrections have to be made in the present reporting on construction of TPK's so that it reflects not only progress in fulfillment of the summary plans assigned, but also the punctuality of activation of enterprises and projects which are part of the complex, and in particular raw materials and processing, livestock-raising complexes, as well as transportation, housing and cultural and consumer service facilities necessary to well-rounded development of the region as a whole.

As the decree emphasizes, results can be achieved at a high level only with extensive introduction of the advances of scientific and technical progress and a higher level of machinery per worker. A number of steps are now being taken to speed up full mechanization of construction work; in particular, the production of construction machines, machinery and tools is increasing considerably.

Comprehensive information on the level of mechanization of production and the level of introduction of new technical measures and also the influence of this factor on the growth of labor productivity and reduction of the number of workers doing manual labor is taking on quite considerable importance in this connection.

Proposals are being prepared in the USSR Central Statistical Administration on inclusion in annual reports on the mechanization of operations in construction of indicators reflecting the number of workers employed at mechanized and manual labor and on the benefit obtained from mechanization.

Great importance is also attributed to an economy regime and reduction of losses in production. A sample survey conducted by agencies of the USSR Central Statistical Administration and USSR Gosstat in certain trusts showed that there is considerable overexpenditure of materials related to departure from proper work procedures, spoilage of materials and fabrications, and also because work done poorly must be redone.

At present there is no regular information on this important question. Data worked up on the basis of reports on Form No 2-sn in consolidated indicators on consumption of materials per million rubles of construction and installation work do not essentially reflect the results of the performance of construction organizations in economizing on materials. Statistical reporting form No 20-sn, which was adopted last September, now makes it possible to obtain monthly information on consumption of materials and supplies

in construction as compared to production standards. It is important to see that this new reporting system is adopted in all construction organizations and enterprises carrying on construction by the direct labor method and also to ensure the reliability of data on this form.

In analyzing the consumption of material resources it is also advisable to use the appendix to Form No 20-sn, on which construction organizations are to indicate the principal reasons for overexpenditure of supplies and materials, as well as to regularly run on-the-spot checks at construction sites.

The present reporting system makes it possible to comprehensively analyze the potential that exists for increasing the efficiency of construction work, specifically by improving the use of manpower and fixed productive capital and by reducing unproductive expenditures and losses. Better use should be made of these reports and also reports on the quality of construction. The data of reports of builders and construction organizations on the quality of projects accepted for operation would best be supplemented for comprehensive analysis of quality with the material of sample checks on the reliability of reports concerning activation of production capacities, housing and cultural and consumer service facilities, as well as with the data of industrial statistics on attainment of capacities at newly activated facilities and reports on the costs of construction and installation work reflecting the size of losses from rejects and work improperly done.

Great attention will have to be paid in analytical work to the development and elaboration of cost accounting and to enhancement of the role of economic incentives in the achievement of the end results of construction. In particular there is a need to improve economic data on development of the progressive form of cost accounting in construction--the construction crew job contract according to the method of N. A. Zlobin. At the beginning of this year 34.5 percent of all crews were working according to this method; but this percentage is very low in a number of republics and oblasts where the crew job contract is slow to be introduced.

The decree envisages measures to improve project planning and cost estimation toward improvement of the quality of project planning and reduction of project planning time and toward less expensive construction. Five-year plans of project planning and survey work, of development of the network of the material and technical base of project planning and surveying organizations linked to capital construction plans are to be drafted and approved.

We must admit that little attention is being paid as yet to preparation of statistical and economic information on these matters. At the same time primary reporting of these organizations has recently been revised and supplemented with a number of new indicators reflecting the qualitative aspect of project planning, including such aspects as the number of project plans (work topics) completed on time and ahead of schedule, the number of project plans commended for high (excellent) quality, the number of projects returned by expert evaluation committees for reworking, losses and

unproductive expenditures of the product planning organization, the estimated cost of the work of redoing and changing project plans to be reimbursed by customers, etc.

There is a need to considerably improve the analysis of these reports, making use as well of the results of the survey on Form No 1-ef on project planning times, builders' reports on Form No 8-ks and the data of Gos-ekspertiza [State Service for Expert Evaluation].

Settlement should now be made between clients and project planning and surveying organizations for altogether finished and client-accepted project plans for construction of enterprises and complexes, phases and facilities capable of independent activation. At the present time more than 60 percent of all project planning and survey work is being paid for in accordance with this progressive settlement procedure. The data of reports on activity of project planning organizations under the new conditions should also be analyzed.

Successful performance by state statistical agencies of the tasks arising out of the decisions of the party and government concerning improvement of planning and enhancement of the effect of economic instruments on raising production efficiency and the quality of performance will make it possible to raise the statistics on capital construction to a new and higher level.

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CSO: 1821

CONSTRUCTION, CONSTRUCTION MACHINERY, AND BUILDING MATERIALS

PROBLEMS OF INCREASING EFFICIENCY OF CAPITAL CONSTRUCTION

Vilnius SOVETSKAYA LITVA in Russian 16 Oct 79 p 2

[Article by S. Movshovich, Manager of the Lithuanian Republic Office of USSR Stroybank: "A Greater Return on Each Ruble: Problems of Increasing the Efficiency of Capital Construction"]

[Text] From year to year our republic experiences growth in the volume of capital construction--this most important sector of the national economy, upon the development of which, to a large extent, depends the workers' well-being. Large sums are expended on the construction of plants, factories, apartment houses, and other projects. During the present year alone capacities were put into operation producing fertilizers at the "Azot" Ionization Association, provisions have been made to put into operation the first stage of the Mazheyskiy Oil Refinery, the canning section of the Klaypedskiy Dairy Combine, as well as a number of other enterprises and agricultural structures. In the field of capital construction, however, there are still substantial shortcomings: the time periods allotted for introducing individual capacities are being dragged out, at times plans are not fulfilled, and a better organization of operations is still to be desired. It is not just by chance that particular attention was paid to this field in the decree of the CPSU Central Committee and the USSR Council of Ministers, "On Improving Planning and Strengthening the Influence of the Economic Mechanism on Increasing Production Efficiency and Work Quality."

What do we understand by the words "increase the efficiency of capital construction?" This means that we must strive to obtain the greatest return on each ruble which we spend on capital investments. With this goal in mind, the decree provides for the maximum utilization of such levers of the economic mechanism as improvement in planning, widespread utilization of banking credits, regulating accounts in the national economy, and so forth.

Needless to say, if even the tiniest miscalculation is allowed in the planning at its initial stage, it would lead in practice to an entire series of errors and deviations. This can be avoided if the planning for capital investments is based on the five-year plans and the title lists for construction projects, compiled for the entire period of operations with a breakdown

by years and in accordance with the established norms for the duration of the construction. Moreover, in accordance with the decree, the title lists are approved only in case on 1 July of each current year (i.e., of the year preceding construction) the necessary planning-estimate documentation is presented, and the working drawings are prepared for the volume of the first year of construction. This will allow us to ensure the continuity of planning and financing capital construction as well as to curtail the number of projects which are being built at the same time. It is no secret that we sometimes start erecting new structures, when those which are being built, the so-called buildings "in progress," are not guaranteed the funds to be completed on time. In our republic the volume of unfinished construction is comparatively modest--it comprises about 53 percent of the annual amount of capital operations. However, the number of projects under construction at the same time is quite large--more than 5,000 production-type structures alone. Obviously, they cannot all be guaranteed the necessary materials, raw materials, and manpower, and this explains the urgency of the problem of curtailing their number and concentrating the resources which we do have.

Beginning next year, the erection of production-type capacities will be conducted more extensively by means of long-term credits from Stroybank; the latter will become the principal source for financing capital construction. Credit is essentially money, taken on as a debt, and in order to return it on schedule to the bank (naturally, with a modest amount of interest), the ministries, departments, and enterprises strive to be economical in drawing up their estimates, to turn over projects in the shortest possible time periods, to more rapidly assimilate production capacities and begin production output in order to obtain profits by means of which the indebtedness can be amortized. In case this does not happen, the group bears large material losses in the form of fines, payment of higher interest rates, etc.

With the introduction of banking credit there will be changes in the mutual relations between the client and the contractor, as well as in the structure of the operating capital of construction organizations. During the 11th Five-Year Plan the intention is to have a client's accounts with a contractor carried out only for projects for which the "key has been turned over"--i.e., for those which are completely finished. Clients will cease transmittting advance payments to contracting organizations; these will be replaced by Stroybank's credit, which will be issued in strict accordance with the amount of construction and installation work completed. Because of this, there will be an end to the practice whereby money is obtained even before the services have been rendered. A firm procedure will be established, under which, if a construction organization wishes to have funds, it must complete a project. But until the work is finished, it must continue to be in debt or pay a rate of interest.

For a number of years now subdivisions of the Lithuanian Ministry of Construction within the framework of an experiment being conducted by us have been carrying on accounts with clients in accordance with the procedure

indicated above. Each year the Lithuanian Republic Office of USSR Stroybank issues credit to contracting organizations in the amount of about one billion rubles. Long-term credit was used, for example, to carry out the construction of the Alitus Cotton Combine, the Vilnius Bakery, and several other enterprises. This experiment has produced positive results. During the past two years the republic's Ministry of Construction has fulfilled the plans for commodity production, i.e., it has put projects into operation on schedule. Over this time the periods allotted for their construction were curtailed, and the amount of unfinished construction was reduced. And credit levers played no small role in this matter. If the introduction of a project is delayed for three months beyond the time period established by the plan, then a five-percent rate of interest must be paid for the use of credit, and this amounts to a considerable sum. On the other hand, if the project is turned over on time, then the amount of interest levied by Stroybank is reduced to 1/5, while if the project is turned over prior to the time allotted, the amount is reduced to 1/10. This has substantially strengthened the financial position of the groups involved, increasing their bonus funds.

Improving the economic mechanism also presupposes a strict observance of plan discipline and a speed-up of accounts in the national economy. In order to increase the material responsibility of suppliers for fulfilling their contractual obligations and those of buyers for the on-time payment for supplies, provisions have been made for the application of reciprocal sanctions. At the same time, in order to ensure the on-time payment for output within the time periods agreed upon, the banks have been permitted to grant payment credit for a term of up to 60 days, levying an interest rate of five percent per annum. In case the loan is not reimbursed on time, the interest rate levied will be doubled.

An important role in improving the efficiency of capital investments is being delegated to the planning organizations. Their accounts with clients will now be carried out according to the same principle--for completed and accepted documents. In order to finance their own expenditures prior to turning over the plans, these groups will be able to utilize banking credit. To a large extent, the correct planning of capital investments depends on the work of the planning organizations. Together with the clients, they must guarantee the stability of the estimated construction cost. Such cases as the following are completely inadmissible: in the "Azot" Ionization Association, when during the course of modernizing one of the workshops, it was suddenly disclosed that the "Giproazot" Planning Organization had failed to provide, either in the plan or in the estimate for an entire series of operations, costing a total amount of 600,000 rubles. Such miscalculations lead to a situation where the planning materials must be revised and estimates reappraised with considerable increases in construction costs. Thus, in the first six months of the present year alone the estimated costs of 19 projects, financed by the Lithuanian Office of Stroybank, were increased by 44.8 million rubles.

It is well-known that one of the reasons why operational schedules are violated in construction is the failure to supply projects with the necessary materials on time. This occurs because material resources are distributed around the construction projects not by taking specific needs into consideration but in accordance with averaged-out norms, adopted on the basis of an extremely provisional calculation: how much and what kind of materials are required to carry out construction operations in an amount costing one million rubles. But now we will be assigned the task of guaranteeing a strict balance between the construction plans and the resources expended. And their distribution will be carried out in strict accordance with the working drawings and the time periods established.

All the measures enumerated above are called upon to facilitate the improvement of the efficiency of capital investments in construction. Their implementation requires the serious restructuring of the activities of construction subdivisions and clients, of planning and supply organizations, as well as of financial organs and banks. They are all faced with a great deal of work, upon which the growth of our economy will subsequently depend in the final analysis.

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CSO: 1821

CONSTRUCTION, CONSTRUCTION MACHINERY, AND BUILDING MATERIALS

IMPROVE METHODS OF CONTRIBUTION PAYMENTS

Tallin SOVETSKAYA ESTONIYA in Russian 14 Nov 79 p 2

[Article by S. Strenze, Deputy Manager of the Estonian Republic Office of USSR Stroybank: "Contribution Payments"]

[Text] It is generally well-known how effective in our country has been the implementation of the program providing for the growth of the Soviet people's well-being. Just as well-known are the unchanging conditions of this growth--an increase in labor productivity, the careful utilization of materials and means, and an improvement in output quality. And here in the decree of the CPSU Central Committee and the USSR Council of Ministers on improving the economic mechanism among other conditions are further designated the improvement of administration and planning. Therefore, the logical thought occurs that to administer and plan rationally means to facilitate the solution of the five-year plan's principal task.

Particular importance attaches to improvements in planning in construction, where plans are disrupted with regard to the growth of labor productivity and, hence, with regard to the introduction of completed projects as well. We shall speak further about this later on in this article, but for now let us note that our republic has a well-developed network of contracting organizations and enterprises in the construction industry, and they are capable of successfully solving the major problems of economic and social development. Proof of this is the annually growing program of construction and assembly operations. From 1951 to 1978 the annual volume increased approximately 10-fold. Output per worker increased 5-fold, and the number of workers calculated for every one million rubles of completed amounts was reduced from 342 persons in 1950 to 76 persons in 1978.

At the same time intensive factors in the development of our construction production have not been fully utilized. For example, wages, taking into consideration the personal contribution of each construction worker. And so they still do not act as a stimulating incentive in raising labor productivity. The growth with regard to this indicator in the country during the years 1976--1978 amounted to only 8.5 percent, instead of 15.8 percent, as planned. A lag was also permitted by our republic's construction organizations, and especially the system of the USSR Ministry of Construction,

where there has been a decline in output per worker. Let us note that in a number of instances the indicators reflecting the fulfillment of output norms have been artificially inflated by means of supplementary attachments. It hardly needs to be said that such a practice inflicts not only economic harm but also has a negative effect on the moral-psychological climate in production groups, creating the appearance of well being in the construction process at construction sites.

We should remind ourselves here of the well-worn truism that in construction, as in other fields as well, it is of principal importance to provide a distance between the growth rate of productivity and the growth of wages. But we have quite a few facts to the contrary. Thus, the growth of wages in the Parnus PMK (Mobile Mechanized Column) of the "Sel'khozstroy" Trust has surpassed the growth of labor productivity by 21.5 points and that of the Vyrus PMK by 6.7 points. There is also a corresponding surpassing in the accounts of the subdivisions of the "Tallinstroy" Trust.

What is hidden behind these facts? In the first place, there are substantial shortcomings in the organization of operations at the construction sites. According to an estimate made by the Estonian SSR Gosstroy, these miscalculations have led to a reduction of output in our construction which amounts to 2--2.2 percent. The situation has been complicated by disruptions in the plans for mechanization, and these have led to an increase in the proportion of manual labor. And what is characteristic is that many construction organizations have too lightly approached the problem of cutting down labor expenditures, drawing up plans for organizational and technical measures with long delays with respect to the time periods required.

Formalism remains alive here, along with the non-specificity of proposed solutions; the curtailment of labor expenditures is not grounded in economic calculations. And, as a result, there have arisen over-expenditures of monetary funds beyond outlays and illegal payments. And this is done in the name of maintaining the wage level which has been attained. If it has not reached the ordinary total with respect to the indicators for the basic operation, then orders are set into motion for, so to speak, auxiliary and ancillary operations, not included in the calculation of labor expenditures. There have been a particularly large number of payments for auxiliary operations in the subdivisions of the "Tallinstroy" Trust. Its managers, moreover, have not been terribly concerned about the constant over-expenditure of the wage fund. During the first two quarters of the present year alone the overexpenditure here exceeded 300,000 rubles. Matters are just as bad in the rural construction trust.

Here is the right time to speak about another matter. As is well-known, wage funds are planned, but we often do this without taking into account the operational structure, and this brings about over-expenditure of wage funds in some organizations and unfounded economies in others.

Serious censure has also been caused by the planning of indicators with regard to labor with a breakdown by quarters. In this case there is often allowed an abrupt variation of indicators between the fourth quarter of the previous year and the first quarter of the year being planned. In such cases it is necessary to free up or take on a large number of workers, which, in fact, is very difficult. Nor does this facilitate a speed-up of construction or the emergence of labor groups.

Undoubtedly, such flaws in planning have lowered the responsibility of the first-line contracting organizations for accomplishing tasks with regard to the growth of labor productivity and the expenditure of wage funds. At the beginning of the year alone within the system of the Estonian SSR Ministry of Construction more than 100,000 rubles was paid out illegally, of which 26 percent went for payments for operations not provided for by the plan-estimate documents, while 22 percent comprised supplementary attachments and extra payments to skilled workers up to the wage rates in connection with the use of such workers in fields other than their specialties.

It is characteristic that the construction organizations permit surplus payments not without the knowledge of the jurisdictions above them, which (this pertains primarily to the Estonian SSR Ministry of Construction) permit supplementary deductions to be made without sufficient analysis of the reasons for the overexpenditure; they do not take effective measures to reimburse the wage funds, nor do they monitor this process at the sites.

As we have seen there are many negative examples. And the trouble is that the builders have simply gotten used to them and are in no hurry to correct them. Consequently, it will be all the more difficult for them to make the transition to the new principles of planning and stimulating production, when the indicator of the volume of commercial construction output is advanced as the most important factor, and when the demand will be carried out more stringently for the utilization of every ruble of capital investments.

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CSO: 1821

CONSTRUCTION, CONSTRUCTION MACHINERY, AND BUILDING MATERIALS

IMPORTANCE OF END RESULT IN CONSTRUCTION INDUSTRY STRESSED

Tallin SOVETSKAYA ESTONIYA in Russian 20 Nov 79 p 2

[Article by L. Sokk, Sector Chief of the Scientific Research Institute of Construction of the Estonian SSR Gosstroy, Candidate in Economic Sciences: "The Reference Point Is the End Result"]

[Text] As is well known, the decree of the CPSU Central Committee and the USSR Council of Ministers on improving the economic mechanism contains a number of inter-related measures with regard to further improving the activities of construction organizations. These measures are directed at increasing the efficiency of capital investments and at speeding up the putting into operation of production capacities and projects.

Let us note that such measures are extremely timely. We are convinced of this by an analysis of the fulfillment of state plans for 1979 in the republic's construction organizations. Let us cite the following facts for the sake of example. For half a year by means of capital investments some 190 million rubles worth of fixed capital was put into operation, amounting to 17 percent more than for the corresponding period of last year. It would seem that there was no cause for alarm. But let us take another period--three and a half years of the five-year plan. The construction organizations of the Estonian SSR Ministry of Construction assimilated 513.8 million rubles and put into operation 1,397,100 sq. meters of housing. Nevertheless, during the same period 54.2 million rubles were not assimilated. The reasons are well known. All the more significant are the amounts of unfinished construction, the violations of the normative time periods for completing operations, the insufficiently high organizational-technical level of production, etc.

During the past few years a number of party and government decrees have been adopted which are aimed at further improving the construction industry and its production base: on further developing and improving the use of precast, reinforced concrete, on developing the production of porous fillers, as well as other efficient materials and items, and on developing structural science.

A particular place is occupied by the decree on improving the economic mechanism. Essentially it means that a new stage has begun in the overall re-equipping of construction production. The main reference point will now be the attainment of high end results.

It must be noted here that the preparation and approval of the new economic mechanism in construction was preceded by a number of economic experiments in the country; these determined the specific thrusts for improving matters in capital construction. Everything valuable and advanced also appeared in the fundamentals of the new decree.

It is well known that at the present time construction administration is regulated by the economic reform of 1969. In particular, measures were spelled out with regard to improving planning, raising the quality of plan-estimate documentation, strengthening and improving economic incentives, broadening the independence and initiative of the construction and installation organizations, strengthening cost accounting, etc. The implementation of the economic reform has played a positive role in the development and improvement of capital construction, but its individual parts have not yet provided sufficient guidance for all participants in the construction process to achieve end results for the national economy.

Thus, it was necessary to take the next step. This is what the recent decree represented. Provisions were made to conduct the evaluation of the economic activities of the construction organizations and their economic incentives not with regard to the total volume of operations but by taking into consideration the fulfillment of tasks concerned with putting into operation production capacities and projects, commercial construction output, the growth of labor productivity and profits.

The decree also provides for a number of measures in the area of production organization in the lower-level units of construction. For example, a widespread dissemination of the brigade contract, bearing in mind that during the 11th Five-Year Plan this form is to become the basic one.

During the first six months of 1979 the brigade-contract method was used in the republic in completing construction and installation operations amounting to more than 54 million rubles worth, and this exceeds last year's level by 22 percent. The total number of brigades which have been converted to cost accounting amounts to about 550 at the present time, and they encompass more than 6,000 builders and installation workers. There is also the well-known experience of the group of the Tallin DSK (Home-Building Combine), which introduced the method of the through brigade contract, extending throughout the entire technological chain "plant--transport--construction project."

The decree on improving the economic mechanism represents an economic policy which specifies the social program as well as the goals, the basic thrusts of the society's production activity. It is taking its material form on the foundation of the development and sequential implementation of the structural, organizational, and technical policy.

And here it is appropriate to note the following: the technical policy in construction also needs to be refined. For example, there is now a need to work out the principal technical trends in technological and construction planning. It has been clear for a long time that the distribution of new enterprises, as a rule, should be carried out within a complex of industrial units. If we carry out the construction of sources of heat and energy supply in common for a group of enterprises, along with auxiliary workshops, motor-vehicle facilities, transport routes, everyday service areas, eating facilities, etc., then, as analysis has shown, we can save on as much as 20 percent of the production area and quite a bit of capital investments.

We refer to the following fact. Our republic has quite a few enterprises with a modest number of workers--less than 200 persons each; however, their plans for construction and social development are not coordinated among themselves. But, of course, coordination of these plans would allow us to carry out the necessary renovation and modernization of enterprises without serious changes in the construction component.

Let us also take note of the following factor: it is axiomatic that to solve the problems of improving production means to increase labor productivity. Not to create new workplaces but rather to renew fixed assets, to free up manpower from existing enterprises. The experience of the enterprises of Sverdlovsk Oblast proves that the modernization, expansion, and technical re-equipping of existing enterprises is the correct path to the improvement of production efficiency. It has allowed a significant increase in output to be made with less capital outlays as compared with new construction.

But by inertia the modernization of enterprises is still identified with new construction. This is an incorrect point of view. The fact is that because of an imperfection in the mechanism used for evaluating the labor of builders (concerned only with the amount of funds assimilated), they are not interested in carrying out precisely these operations. The reasons are well known. It is crowded to work in an existing enterprise and impossible to utilize efficient equipment. Plan-estimate documents are often issued without taking the actual situation into consideration. Both for the construction organizations and for the planning institutes it is still more advantageous to build new projects than to renew existing ones.

And the decree calls for the solution to this problem. From now on, when the measuring-rod of labor becomes the finished project and the system of material incentives is revised, these conflicts disappear. Naturally, the planning organizations are now confronted with new tasks. They must work out plans and estimates (while construction of the enterprises continues for more than two years) not for the enterprise as a whole but rather for its first phase, being guided by the general plan for the enterprise's development. At the same time as the first phase is being built, work will

be conducted on planning the subsequent phases. The estimated construction cost of each of the phases is approved within the limits of the over-all estimated construction cost of the enterprises; this is determined in the technical and economic grounds (TEO).

A considerable amount of work also confronts the contracting organizations with regard to guaranteeing the plan profits. As is well known, most financial losses these days fall on the small-scale construction organizations. And, therefore, we need to restructure the administration of the construction sector on the basis of creating large, production, construction-and-assembly associations. The decree mentioned above provides a directive for developing and implementing measures to improve the administration of capital construction, bearing in mind the shift in 1979--1981 to a two-three link system of administration. And the foundation has already been laid.

At the beginning of this year, based on the Kaliningrad Territorial Construction Administration, a production construction-and-assembly association was created, and construction administrations were placed under its jurisdiction. As a result, the plan for the half-year was fulfilled for the first time in several years.

Is this experience applicable under the conditions of our republic? We think that it is completely so. At the same time that we have a restructuring of administration it is necessary to eliminate the dissociation of construction organizations among various ministries and departments. Supervision of the construction associations must be carried out by a single organ of administration of the republic's construction production.

Here we need to take the following factor into consideration: the restructuring of the construction administration must not be conducted according to the voluntary principle. A profound study of the entire existing mechanism of administration is required in order to correctly distribute the functional obligations among the various levels and units of administration, proceeding from nationwide interests, and taking into consideration the principle of combining the sectorial, territorial, inter-sectorial, and local aspects of administration.

In short, the builders are faced with great problems. Moreover, it is impossible to solve them in various directions at the same time. In connection with this there is now obviously a need to seriously concern ourselves with creating an inter-departmental coordinating body which would unite scientists, specialists, and enthusiasts for the creative study of the decree on improving the economic mechanism in order to work out specific proposals for applying them under the conditions of our republic. For the transition to the new methods of administration in construction requires a well-coordinated and highly organized preparatory work.

CONSTRUCTION, CONSTRUCTION MACHINERY, AND BUILDING MATERIALS

UDC 64:338.984.3

REVIEW OF ACCOMPLISHMENTS IN MOSCOW DURING 1979

Moscow GORODSKOYE KHOZYAYSTVO MOSKVY in Russian No 12, Dec 79 pp 2-3

[Article: "Concluding the Year 1979"]

[Text] The year 1979 is receding into history. For the residents of Moscow, just as for all of our Soviet people, each year lived through represents an important goal achieved and a point of reference before taking a new step forward.

Each five-year plan and each Soviet year serve to perpetuate the best traditions of the first Leninist communist subbotniks, the shock-workers movement, the Stakhanov movement and the movement for a communist attitude towards labor. At the same time, each of our years is characterized by a new surge of creative activity by the masses and by new initiatives and undertakings.

Thus, greater collaboration is being displayed among the workers, engineering-technical personnel and scientific workers and this has promoted the development of a competition under such slogans as: "A Guaranty of Quality -- From the Plan To the Product," "For the Five-Year Plan for Efficiency and Quality -- First Class Equipment," "Raising Labor Productivity Based Upon Improvements in the Use of Equipment." Today thousands and thousands of leading production workers throughout the capital are striving to complete their personal five-year tasks prior to the 110th anniversary of the birth of V.I. Lenin and many have already fulfilled their obligations.

The patriotic undertakings of the residents of Moscow are in direct response to the historic decisions handed down during the 25th CPSU Congress and subsequent plenums of the Central Committee. The Party emphasizes that a most important task is that of making more complete use of the intensive factors of economic development and further intensifying the efforts aimed at raising the efficiency of social production and the quality of work. This campaign must be carried out in all branches of the economy and at all levels of production and control, with special attention being given to

raising labor productivity, introducing scientific achievements, leading experience and new equipment and technologies into production operations, placing available reserves in operation for the purpose of increasing output production and raising the technical level of production with minimal expenditures.

The residents of Moscow accomplished a great deal during 1979 in implementing the decisions handed down by the Party and in carrying out the tasks of the Tenth Five-Year Plan. The figures and facts clearly testify to the unanimous desire on the part of the residents of the capital to multiply the accomplishments already achieved and to continue further into the future the competition for labor accomplishments. This desire is manifested most of all in the campaign by the residents of Moscow to transform the capital into an exemplary communist city.

Moscow must serve as an example of efficient development of productive forces based upon scientific-technical progress and it must be a city suitable for human life and possessing good planning and architecture, a modern level of civic improvements and all types of services for the population. The inhabitants of this exemplary city must be highly conscientious, organized and well disciplined and good will and an attitude of respect among people must reign throughout the city.

All of these characteristics are very important. However, a requirement exists first of all for making the city's economy exemplary in nature. Without negating the importance of the other factors, it can be said that priority belongs to the sphere of production, where all of society's material wealth is created. Thus, special importance is attached to the fact that during 1979 15 more enterprises earned the title of model enterprise. Included among them were the Trolley Depot imeni Apakov, the Kommunal'nik Plant, Municipal Polyclinic No. 51, Pedagogical Institute No. 5, Secondary General Educational School No. 171 and Department Store No. 5 of the Gastronom Market.

The successful work performed by the collectives of an overwhelming number of enterprises of industry, transport, construction and the municipal economy in the capital is borne out by the results achieved in fulfilling the established tasks and socialist obligations. The foundation for these successes was laid at that time when the plan for three quarters of this year, for the sales volume for products of Moscow industry, was fulfilled by 101.4 percent and the established task for this index was completed by all enterprises.

The output sales plan of the industry of Mosgorispolkom [Executive Committee of the Moscow City Soviet of Workers' Deputies] was fulfilled by 101.1 percent. Approximately 19 million rubles worth of goods were produced over and above the plan. Compared to the corresponding period for last year, the volume of industrial output increased by 2.1 percent. The greatest

rates of growth in production volume were achieved by industrial enterprises of Glavmosavtotrans [Main Administration of Automobile Transportation of the Mosgorispolkom] (4 percent), Glavmosmontazhspetsstroy (3.2 percent), Glavmoszhilupravleniye (8.3 percent), Glavmosdorupravleniye (9 percent) and the Administration for Domestic Chemistry Goods and Rubber Products (11.1 percent).

The principal condition for success is that of motivating all of the members of a collective to participate on an extensive scale in solving the tasks confronting them. This point was made very well by Comrade L.I. Brezhnev, during a meeting with workers at the Motor Vehicle Plant imeni Likhachev, when he stated: "The work of organizing collective labor in a truly efficient manner is a tremendous task and one requiring a great amount of attention not only on the part of the leaders of a collective. Modern production operations require that each worker possess a clear understanding of the role he plays in the labor process, what he does and why he does it, what is dependent upon his work and he must sense that his work is a necessary part of the overall operation. Thus the economic leaders of enterprises throughout the city and their social organizations are constantly orienting the labor collectives towards raising production efficiency and the quality of work in every possible way, constantly searching for reserves, achieving economies and greater thrift and strengthening planning and labor discipline.

For example, the collectives of Glavmosavtotrans transported a considerably greater amount of freight in behalf of the plan, than the figure called for in the socialist obligations. The builders and workers attached to the construction materials industry have reported upon their successes. Hundreds of residential buildings were placed in operation. Prior to the commencement of the school year, 19 school complexes, new buildings for technical schools and a PTU [vocational and technical school] and a number of dormitory facilities were turned over for operation. Work was completed on the erection of a new educational building for MGU [Moscow State University imeni M.V. Lomonosov]. Three faculties of the largest VUZ in the country are accommodated on the eighth floor of a building on Lenin Hills.

The All-Union Scientific Research Center for Protecting the Health of Women and Children has opened its doors on Volgina Street. This complex, containing the last word in medical equipment, was built using funds obtained from work carried out on days off. A number of cultural-domestic installations were built, including a childrens' musical theatre on Bernadskiy Boulevard. The construction projects for just one year alone served to transform the capital; they represented still another stage in the program aimed at converting the city into a model communist city.

The year 1979 became a year devoted to further developing the material-technical base of trade and public catering and to raising the level of services being made available to the population. More than 100 additional

stores and departments for accepting advance orders for food goods, semi-finished products and culinary and confectionery items were opened in the housing developments and at industrial enterprises. Approximately 50 additional mechanized lines for the preparation and issuing of dinners were placed in operation in the dining halls of industrial enterprises and educational institutes. An increase took place in the sales volume for packaged goods and also for products sold by means of the progressive self-service method.

During nine months of this year alone, the trade and public catering collectives fulfilled their plan for retail trade turnover by 101 percent. More than 122.6 million rubles worth of goods over and above the plan, or 153.3 percent of the amount in the annual socialist obligations, were sold to the population during this period. The sale of internally produced products amounted to 11.4 million rubles, or 2.5 times more than the figure called for in the obligations.

As is known, the 25th CPSU Congress outlined a broad program of social development for the country, a program which calls for steady improvements in the material and cultural standard of living for the nation and greater prosperity for the Soviet people. An important part of this program is that of concern for further developing and improving domestic and municipal services for the population. The sphere of services in the capital is confronted by the task of satisfying more completely the constantly increasing needs and requirements of the people, raising the quality of the work and making the services available to all individuals.

In carrying out the plans as outlined, the collectives of domestic services enterprises in Moscow fulfilled their annual socialist obligations with regard to the sale of services to the population, prior to the 62d anniversary of October. Their plan was exceeded by 2.69 million rubles worth of services. Approximately 1,610 new and modern models of clothing, footwear and leather and fancy-goods items were developed and introduced into production operations and 6,700 units of new and highly productive equipment and light mechanization machinery were installed (instead of 6,300 units, as called for in the annual obligations). During this same period, 24 complex receiving points were opened and 285 domestic services enterprises underwent repairs and not just 250 as called for in the obligations.

The collectives of the Mosgorremorgtekhnik Plant, Factory No. 4 of the Trud Production Association, many enterprises of the Administration for the Sewing and Repair of Clothing in Response To Individual Orders of the Population and so forth, constitute the vanguard of those organizations participating in the competition. Importance is being attached to taking into account the experience of the best organizations, to following their example in the interest of attaching greater creativity to labor and to the great opportunities that are available for searching for production

reserves. The experience of the best and leading workers must be made available to each member of a collective in the interest of achieving the best results and providing assistance to backward workers.

In connection with the task of transforming the capital into a model communist city, a great amount of purposeful work has been carried out in recent years aimed at improving buildings, territories, installations and the overall level of sanitary maintenance. This year, a distinctive feature of the campaign directed towards improving the streets, arteries, squares, public gardens and approaches to the city was the ever-increasing participation in it of collectives of enterprise and organization workers and all Moscow residents.

Special importance is attached to the decree of the Bureau of the CPSU MCK [Moscow City Committee] entitled "Concerning the Letter of N.D. Denesh," in which importance was placed upon the need for developing high moral qualities in Moscow residents, improving the behavior of people in production and in public places and raising the culture of labor and the personal participation and responsibility of each individual for the maintenance of cleanliness and order in the capital. In response to the decree, additional volumes of work were planned in the regions for implementing further civic improvements, with use being made of the internal economic potential of enterprises and institutes furnishing support for the housing microregions, work was started in connection with the creation of voluntary repair brigades and other measures were carried out.

As a result of an extensive socialist competition and an all-city inspection aimed at restoring order to buildings and housing areas, the capital's workers and residents succeeded on the whole in carrying out those obligations aimed at implementing further civic improvements throughout the city. The plan for the capital repair and improvement of dwellings was fulfilled by 104.1 percent and current repairs -- by 100.9 percent. More than 5 million square meters of building facades were improved and the tasks for road repair and construction were over-fulfilled.

Of the more important work carried out, the completion of the first phase of reconstruction of the Moscow circumferential highway is deserving of special mention. The asphalt surface on an 11 kilometer sector of this road was replaced and underground crossings were installed. Work was also completed on the construction of a service road for Leningrad Boulevard, on the sector extending from the Sokol subway station to Begovaya Street. The sector of Michurin Boulevard which leads to the Olympic Village was reconstructed.

In order to raise the level of maintenance of main highways and municipal territories, approximately 800 machines and mechanisms were placed in operation. The plan for four years of the five-year plan, for the repair of road surfaces, was fulfilled in conformity with the adopted socialist obligations ahead of schedule prior to 1 October and in the volume of 27.7

million square meters. In addition, complex improvements were carried out on 517 hectares of forest and park land, instead of only 515 as called for in the socialist obligations.

The best results in the carrying out of civic improvement obligations were achieved by the collectives of enterprises and organizations in Zhdanovskiy Rayon. They successfully carried out their established tasks in terms of all indices and they ensured the timely preparation of dwellings, administrative buildings, central heating systems, heating lines and heating points for operation during the 1979-1980 winter period. Fine results were also achieved during the competition by the workers in Voroshilovskiy, Kiyevskiy, Kuntsevskiy, Kuybyshevskiy, Lyublinskiy and Perovskiy rayons.

It is impossible to enumerate everything that was accomplished by the residents of Moscow during 1979. This serves as clear proof of the loyalty of the city's workers to the glorious revolutionary and labor traditions and it underscores their unanimous support for the work of our party, which is implementing peaceful policies in a consistent and purposeful manner and constantly improving the welfare of the people. The decision handed down by the MOK [International Olympic Committee] to have the 22d summer Olympic Games conducted in Moscow serves as strong recognition of the great contribution made by the Soviet state, the Communist Party and personally by the General Secretary of the CPSU Central Committee and Chairman of the Presidium of the USSR Supreme Soviet, Comrade L.I. Brezhnev, towards the relaxation of international tension and towards the work of strengthening peace throughout the world.

The year that is ending has been of special importance in connection with preparing the city for the 1980 Olympic Games. The decisions handed down during the Plenum of the CPSU MCK concerning "The tasks of Preparing For and Conducting the 22d Olympic Games of 1980 in the City of Moscow," raised the task of ensuring the completion of construction work on all Olympic Games projects during 1979. A portion of these projects were placed in operation prior to the commencement of the final competitions of the 7th Summer Games of the people of the USSR. Work continues on the remaining projects.

Increased attention has been focused on olympic construction work and greater exactingness is being imposed upon economic leaders for ensuring the timely fulfillment of the plans and obligations for each olympic project and its introduction into operations in accordance with the established schedule. Enterprises and organizations organized efficient patronage assistance for the olympic construction projects. This assistance was especially active during the summer in connection with the carrying out of civic improvement work and the preparation of buildings and territories. Shock komsomol-youth and student construction detachments performed successfully at the projects.

The measures undertaken had a very positive effect on the course of construction. Several enterprises of the permanent public catering network,

a main telephone terminal, a directorate building and also a building in the Olympic Village were all turned over for operation. Approach roads leading to the competition areas and to the tourist accommodation areas were placed in operation ahead of schedule. The norms for the construction of a building for the Television-Technical Center imeni 50-Letiye Oktyabrya were over-fulfilled to a considerable degree and a considerable volume of work was carried out in connection with the construction of an enclosed bicycle track at Krylatskiy.

There is no need for mentioning all of the projects. Beyond any doubt, they will all be placed in operation in accordance with the established schedules. However, this requires greater coordination of the work being carried out by all organizations participating in the planning and erecting of unique projects. The builders must be provided with comprehensive assistance if they are to fulfill their plans and obligations.

The year that is now coming to a close has witnessed many events of truly historical significance. In the sincere and moving speech delivered by Comrade L.I. Brezhnev before voters in the Baumanskiy Election District on 2 March, measures were developed and defined for implementing the tasks associated with the country's economic and social development, tasks which were developed during the 25th CPSU Congress. The elections to the USSR Supreme Soviet, which took place thereafter, demonstrated with renewed force the monolithic solidarity of the residents of Moscow around their native Leninist party.

The decree adopted in April by the CPSU Central Committee, entitled "On Further Improvements in Ideological and Political-Educational Work," defined the strategy and tactical actions to be used for carrying out the program goals of the party in the sphere of developing a communist consciousness in the people. This decree requires an increase in the efficiency and specific nature of propaganda and agitation and in their links with life and with solving economic and political tasks and it also requires persistent efforts aimed at strengthening labor and state discipline and raising responsibility for assigned tasks.

An intensification of agitation and propaganda work is especially important at the present time, during this period of serious economic reorganization, owing to the adoption of very important documents -- decree of the CPSU Central Committee entitled "On Further Improvements in the Economic Mechanism and the Tasks of Party and State Organs" and the decree of the CPSU Central Committee and the USSR Council of Ministers "Improvements in Planning and Intensifying the Effect of the Economic Mechanism With Regard To Raising Production Efficiency and the Quality of Work." Improvements in the economic mechanism in turn requires serious improvements in the organization of the educational process directly in the labor collectives. The introduction of new and progressive indices for evaluating and stimulating their activities, the conversion over to brigade forms for the organization of labor and strict observance of contractual obligations --

all of these factors are associated with the need for overcoming the forces of inertia both in the methods of management and in the approach employed for management. This in turn requires a higher level of conscientiousness on the part of the people, including economic leaders, a thorough understanding of their assigned tasks, a higher level of responsibility and strict observance of planning, production and labor discipline by a collective of workers on the whole and by each individual worker.

While summarizing the results of the fourth year of the five-year plan, the residents of Moscow are at the same time making preparations for the final year. It will be a year devoted to national creativity -- 110th anniversary of the birth of V.I. Lenin. In honor of this glorious date and by way of responding to the decisions handed down by the party and government, the workers in the capital launched a socialist competition on an extensive scale. This will be the year of the 1980 Olympic Games -- an international sports forum, which for the very first time will be held in the capital of the world's first socialist state. And it will be a year of tense preparations for the 26th CPSU Congress, the principal goal of which will be -- well-being and happiness of the people.

It is a matter of honor for each resident of Moscow to make a worthy contribution towards fulfilling all of the plans outlined by the party, consolidating the successes already achieved and mobilizing all forces for the purpose of realizing new labor achievements. A thorough and creative search for reserves, increasing enthusiasm and more control over the masses based upon scientific methods of management -- these are the factors which provide a reliable guarantee for multiplying successes.

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CONSTRUCTION, CONSTRUCTION MACHINERY, AND BUILDING MATERIALS

UDC 69.059.1

MEASURES FOR IMPROVING HOUSING RESOURCES IN MOSCOW DESCRIBED

Moscow KORODSKOYE KHOZYAYSTVO MOSKVY in Russian No 12, Dec 79 pp 19-21

[Article by V.F. Shcherbakov, chief of Glavmoszhilupravleniye: "Homes -- For Public Preservation"]

[Text] Recently the Bureau of the CPSU MCK [Moscow City Committee] and the Executive Committee of Mossovet [Moscow City Soviet of Workers' Deputies] examined the problem concerning "The Initiative of Residents of Zhdanovskiy Rayon in the City of Moscow With Regard To Accepting Dwellings for Public Preservation." It is mentioned in the decree that the residents of a number of microregions have undertaken patriotic obligations. Thus a voluntary repair brigade was created at House No. 13 on Kovrovyy Lane. This brigade has resolved to carry out a number of operations in connection with the current repair of the building, to improve the yard territory, plant trees and shrubs, to install additional small architectural forms and also to organize constant watches at the entrances. Similar obligations have been undertaken by the residents of houses No. 2 on Verkhne-Syromyatnicheskaya Street, No. 9 on Kachalinskaya Street, No 11/2 on Chkalov Street, No 4 on Rabochaya Street and so forth.

It bears mentioning that there have been instances in the past when the population has provided public preservation for its homes. Many such examples could be cited. However, the initiative displayed by the residents of an entire group of homes, on the scale of a rayon -- is considered to be exceptional and at the same time quite proper. This reciprocal concern on the part of these residents of Moscow came about owing to the manner in which the capital's housing resources developed and also as a result of implementation of the program aimed at providing each family with a well-arranged apartment.

"Up until now" stated the General Secretary of the CPSU Central Committee and Chairman of the Presidium of the USSR Supreme Soviet, Comrade L.I. Brezhnev, during a meeting with voters from the Baumanskiy election district in Moscow, "no country in the world has been able to solve this task. Yet we accepted it and we will solve it." As emphasized once again during the

25th CPSU Congress, the principal concern of the party is that of raising the standard of living of the people. Moreover, special attention is being given to solving the housing problem. This year there are 130 million square meters of usable space and the balance value of the housing resources reached 15.5 billion rubles. Radical changes took place in the level of engineering equipage. Almost all homes are equipped with gas, water supply, central heating, hot water and so forth. The housing economy has been transformed into the city's largest branch.

Much is being accomplished in the housing economy in connection with improving services for the population and providing greater living comfort. On the 4th of September of last year, the USSR Council of Ministers adopted the decree "Measures for Further Improving the Operation and Repair of Housing Resources." This most important document provided the foundation for the plan for scheduled and long range measures, developed by Glavmoszhilupravleniye. In conformity with this plan, 300 million rubles were appropriated during this current year alone for carrying out repairs on the housing resources. During the January - September period, these funds were used for carrying out repair work, in accordance with the PPR [scheduled preventive maintenance] system, on 2.1 million square meters of living space, 5.2 million square meters of facades and 257.9 kilometers of heating networks.

An important component part of the task of transforming Moscow into a model communist city is the consistent implementation of civic improvements in the microregions. This will create the best conditions for the labor, daily routine and recreation of Moscow residents. Civic improvements are being implemented in a rhythmic manner and on a high quality basis in housing areas located in Zhdanovskiy, Krasnopresnenskiy and Voroshilovskiy rayons, in Zelenograd and so forth. Since the beginning of the year, complex civic improvements have been carried out on tens of streets and in 810 yards and work continues on the creation of 42 standard microregions. However, substantial shortcomings are still being noted in the organization and carrying out of these measures, as pointed out by the lessons learned last winter.

The branch's workers are presently engaged in solving mainly two tasks. These tasks derive from the need, first of all, for modernizing as quickly as possible those residential buildings preserved for the future, with the apartments being replanned and modern improvements introduced and, secondly, ensuring the preservation of post-war building structures having all types of civic improvements. This work can be carried out only if the capital and current repair work is organized in an efficient manner and if the quality and culture of production are raised. Obviously, the residents can accept for public preservation only those homes, the structures and systems of which function in a faultless and reliable manner.

Specifically, what is being done to improve the operation of the housing resources? The introduction of the PPR system is being expanded. The rates

of growth in the volume of this work will make it possible, towards the end of the Eleventh Five-Year Plan, to ensure the repair of each home once every nine years. Thus the PPR must prevent the premature wearing out of structures and ensure a maximum degree of living comfort. Much is being accomplished in this regard. However, many unresolved problems still remain. We are not being properly supported by the contractors; they are not adhering to the schedules and quality required for the repair work. The work volumes for carrying out repairs on roofs and engineering systems are low. In order to eliminate the premature wearing out of dwellings and also the complaints of residents, the volume of repair work carried out on sanitary engineering installations should be increased threefold, on roofing -- twofold and on facades -- by 1.5 times. This is a priority condition for successfully solving the planned program.

A more complicated task is that of improving the organization of current repairs and the operation of buildings and the sanitary cleaning of dwellings. The difficulty lies in the fact that expenses for the technical operation of modern housing resources, with traditional methods being employed, increase on the order of 1.5-2 times. The extensive development of the housing economy, which took place up until recently, at which time the number of operational personnel grew proportional to an increase in the housing resources, led to a situation wherein the army of operational workers was greater in terms of numbers than the builders. Naturally, a systematic shortage of workers in the housing-operations organizations adversely affects the quality of maintenance of residential dwellings.

These questions are being resolved mainly on the basis of production specialization and concentration, improvements in the structure of control and mechanization and automation of operational processes. Everyone is aware that the present housing economy is unthinkable in the absence of such large associations, operating as a part of a main administrative board, as Moslift, Mosinzhremont, Moszhilpromkomplekt, trusts of Moszhilremstroy and Moszhilremont, a planning and scientific-research institute and an information-computer center.

In recent years the current repair of dwellings and their systems has been carried out on a contractual basis by the repair-construction administrations of RZhU [rayon housing administration]. The contractual method made it possible to carry out such repair work annually, in accordance with the PPR system and in a volume which exceeded 17 percent of the housing fund, thus conforming to the normatives. Complex economic accountability brigades are beginning to carry out this work in a number of rayons (Oktyabr'skiy, Leningradskiy, Babushkinskiy and others).

At the present time, each housing-operations office includes a group of machinists, electricians and other specialists, each one of whom is responsible for his own work. Even if he performs his work in the best possible way, it may not affect the overall course of the repair work or its

tempo or quality. Attention was focused on this problem in some RSU's [repair and construction administration]: how should the work be organized so as to ensure that the entire group, working together, accelerates and improves the quality of the repair work and bears collective responsibility for the technical condition of the housing resources in the microregion? Thus the economic accountability complex brigades for carrying out current repairs on dwellings came into being.

By agreement with the brigade, the RSU furnishes it with technical documentation, plans and schedules, a wage fund and limits for labor and it is also obligated to supply materials in conformity with the schedule. Distinct from a conventional brigade, an economic accountability brigade receives bonuses from funds saved, but only if the quality of the work was good or outstanding or a reduction took place in the period of PPR work. And the advantages of economic accountability became apparent immediately. Indeed the interest of each individual in overall success being achieved serves to promote the development of comradely mutual assistance and joint control, solidarity within a collective and the birth of a conscientious communist attitude towards labor.

The extensive spread of the method of brigade economic accountability must lead to an increase in the level of technical housing operations. Moreover, the rapid introduction of this method into operations requires a change in the method for planning labor indices, with the quality of operations and not the work volume in rubles being employed as the determinant factor.

The decree of the CPSU Central Committee and the USSR Council of Ministers entitled "Improvements in Planning and Intensifying the Effect of the Economic Mechanism With Regard To Raising Production Efficiency and the Quality of Work" is directed precisely at solving these tasks.

It bears mentioning that there have been no incidents of untimely fulfillment of requests by the population in those areas where economic accountability brigades are in operation or where the work was organized in an efficient manner. Unfortunately, a great amount of criticism is still being received from residents concerning the delays which ensue before minor defects are finally corrected. As a rule, no complaints are being heard in those housing organizations where this schedule is being observed. However, there are also almost no requests for work owing to the possibility of defects appearing. Thus the population in such microregions, by way of displaying concern for themselves, provide active assistance to the housing-operations organization by participating in inspection measures and accepting responsibility for preserving their own dwellings and good order throughout the territory. The initiative displayed by the residents of Zhdanovskiy Rayon serves as clear proof of this fact.

Considerable importance is being attached to preventing the deterioration of homes and to correcting problems in the housing economy. Work is nearing completion on the creation of a dispatcher service responsible for ensuring

the efficient carrying out of adjustment operations and unforeseen work and also work requests submitted by the population. At the present time, ODS's [joint dispatcher system] are servicing 650 microregions. As a result of their introduction, engineering systems are performing in a more reliable manner and the number of service personnel has decreased by roughly 12,000 persons or, in other words, the personnel shortage was eased somewhat. Even more important was the fact that success was achieved in raising the culture of services being made available for the population and in lowering expenditures for building operations.

The housing economy workers are undertaking measures aimed at raising the efficiency of the ODS's, strengthening the production base and making new equipment available; around-the-clock schedules are being established for operation of the equipment. At the present time, rayon dispatcher systems are being introduced into operations. With their introduction into operations, a single centralized service will be created for controlling the technical status of the housing resources. In the interest of improving the structure of control, an automatic system is being placed in operation for controlling the housing economy, the first phase of which has already been turned over for industrial operation.

An important aspect of our work involves the sanitary cleaning of homes and the tracts of land on which they are located. A considerable amount of work is also involved here. Mechanized cleaning offices are in operation in all of the city's rayons. These offices are making extensive use of cleaning machines produced by industry and also some developed and produced by services of the housing economy.

Nevertheless, not all of the problems have as yet been solved. Improvements in the methods for organizing the manual cleaning of sidewalks, considering the chronic shortage of yard-keepers and the unattractive nature of their profession, can certainly be viewed only as a half-measure. Modern specialized machines are required, particularly for cleaning the so-called 2-meter strips and gutters. We still have not created such machines, although we are working in this direction. Generally speaking, industry is giving no attention to this problem. True, the situation could be improved considerably if the economy was supplied with an adequate number of those items of equipment which are being produced serially. Nevertheless, the branch's workers are carrying out an entire complex of additional measures aimed at improving residential cleaning operations (from the editor -- see article by M.G. Grudkov entitled "Mechanization of Cleaning Operations," in Issue No. 8 for 1979).

The exterior appearance of housing developments is determined to a considerable degree by the intra-block green plantings. Unfortunately, no system is available for handling this important element of municipal civic improvements. It is our opinion that a need exists for creating rayon specialized services for carrying out landscaping work, with these services being provided with the required equipment.

As correctly pointed out in the decree of the Bureau of the CPSU MGK and the Executive Committee of Mossovet, the carrying out of a complex of work concerned with adding improvements to dwellings and adjoining territories is dependent to a considerable degree upon the work of independent social organizations and the population itself. Our traditional inspections of the technical situation and civic improvements have shown just how much can be accomplished if these forces are organized in a skilful manner.

The initiative displayed by the residents of Zhdanovskiy Rayon reveals that a more specific character should have been attached to the participation of society in the inspection measures and in the work of preserving dwellings. We are of the opinion that the population should have been broken down by professions in all of the microregions and a determination made for each family as to the possibility of its participation in improving its own block. In addition, the individual apartments should be assigned permanent sectors and definite volumes of work, measures should be developed and implemented for ensuring that society is supplied with materials and instruments, incentive payments should be issued to the more active repair workers and so forth. The decree of the Bureau of the CPSU MGK and the Executive Committee of Mossovet is directed towards achieving these goals.

Success in disseminating the initiative displayed by the residents of Zhdanovskiy Rayon is dependent to a considerable degree upon the manner in which educational work is carried out at a place of residence. This work takes various forms -- lectures and discussions, thematic evenings, yard and street holidays, oral journals, meetings with knowledgeable persons, clubs representing different interests and so forth. In particular, a great amount of importance is attached to exercises conducted for juveniles in societies and sport sections in a microregion -- this is an inalienable part of the initiative displayed by the residents of Zhdanovskiy Rayon.

At the present time, a requirement exists for increasing the amount of attention being given to the development of independent principles, to educational work carried out with the population, to stimulating the population into carrying out more complete improvements on their dwellings and to the socialist competition for exemplary maintenance of apartments and the entrances to homes. The leaders of the housing-operations and repair-construction organizations must concentrate the efforts of all of the services and society on improving the maintenance of dwellings and on implementing civic improvements throughout a territory. The book by L.I. Brezhnev entitled "Tselina" [Virgin Land] contains the following words: "Civic improvements -- represent an arrangement of blessings for people and concern for them. Not only is this always economic work, but in fact it involves politics primarily."

The initiative displayed by the residents of Zhdanovskiy Rayon, as pointed out in the mentioned decree, confronts us branch workers with a very important task -- creating the conditions required for increasing the contribution by each resident of Moscow towards improving the maintenance

and good order of the housing fund, ensuring that the voluntary repair brigades are supplied with the necessary implements, instruments and materials, determining the work projects and volumes jointly with the public councils for homes and entrances and raising the level of services for the population. The housing economy workers and the most active members of society must study and disseminate to all areas the leading experience accumulated in organizing the competition for exemplary maintenance of and improvements to the housing fund and promote in every possible way a search for and the implementation of new and progressive forms for participation by Moscow residents in all measures associated with ensuring the preservation of dwellings -- a most valuable national property.

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IMPROVEMENTS IN ARCHITECTURAL APPEARANCE OF MOSCOW BUILDINGS DESCRIBED

Moscow GORODSKOYE KHOZYAYSTVO MOSKVY in Russian No 12, Dec 79 pp 31-32

[Article by Ya.V. Farfel': "A Facade -- The Face of a Building"]

[Text] The streets of a city can be viewed as chapters in a novel and its buildings -- as the pages in these chapters. It is good when each such page is read with interest and admired. But it often happens that they are dull and monotonous and accomplished in an indifferent and untidy manner.

As is well known, a house begins with a facade. We take pleasure in seeing bright and expressive facades. It is our wish that every building in Moscow be "read" in an enthusiastic manner and be worthy of its glorious and unusual city. How this can be done is conclusively revealed by an exhibit of Glavmospromstroymaterialy [Main Administration of the Building Materials and Structural Parts Industry of the Mosgorispolkom], which opened recently on Frunzenskaya Embankment in the joint "Construction" pavilions of the USSR VDNKh [Exhibition of Achievements of the National Economy of the USSR].

A great amount of work has been carried out in recent years in connection with improving the architectural expressiveness of completely prefabricated buildings in the capital. Together with the planners and builders, the industrial workers succeeded in diversifying their palette of resources, thus making it possible to provide exterior walls with a handsome and monumental appearance. In addition to the traditional coverings of ceramic or glass-mosaic wall panels, new methods appeared for finishing off exterior elements, utilizing the decorative properties of concrete embodied in the structures. At enterprises of Glavmospromstroymaterialy, the panels are made with handsome relief surfaces made out of white and grey concrete. Rather effective are those structures having exposed coarse aggregate and also a combination of relief or smooth surface having an exposed composition, included in a concrete of inert materials as, for example, granitic crushed stone.

Many handsome multi-story buildings have already been built in the capital. They have relief facades of white concrete, which revive the wonderful

traditions of Moscow in terms of white stone. These include the Series P-68 apartment buildings in Teplyi Stan, an experimental apartment complex in Severnyy Chertanov, buildings of the MOSKOVSKAYA PRAVDA Publishing House, an ASU [automatic control system] for the 1980 Olympic Games and a number of others. The facades of buildings under construction for the Olympic Games hotel complex in Izmaylovo and for other series of apartment buildings will be just as impressive.

At the exhibit we take note of samples of very diverse panels and blocks having facades finished off in white concrete. Included among them are some which are in extensive use and others which are in a stage of experimental or industrial development. The principal supplier of this new production is the Beskudnikovskiy Combine No. 1 for construction materials and structures. A number of other enterprises are currently commencing the production of these products.

The development of white stone facing made out of concrete has an interesting history. Initially, decorative slabs of white concrete were delivered to the Beskudnikovskiy Combine from Plant No. 14 for Reinforced Concrete Products. During the building-up process, these slabs were laid on the surface of conventional lightweight aggregate concrete panels. This technology turned out to be both cumbersome and expensive. Thereafter, the Beskudnikovskiy Combine workers decided not to place finished slabs on the surface of a panel, but rather a composition layer of white concrete and subsequently, with the aid of a matrix, to form a relief on it and thus obtain a surface similar to slab installation. The result exceeded expectations: the technology was simplified, the quality of the facial surface improved and the production cost for one square meter of facing decreased by twofold.

We admire the wonderful products displayed in the open exhibit area, products having a white concrete composition, and we are pleased by the photographs on display in the Glavmospromstroymaterialy Pavilion of unique buildings and entire apartment complexes, the facades of which beautify the appearance of Moscow. But in order to evaluate properly the contribution made by industry in the use of this new type of finishing-off for facades, one must be aware of the tremendous work which preceded and which accompanies this work that is of such importance to our city. Workers attached to production plant groups, a scientific-research laboratory and a design-technological bureau of Glavmospromstroymaterialy participated on a creative collaboration basis in a complex of work associated with creating a conveyor line technology for production, equipment, new construction forms and in selecting the compositions for heavy white architectural concretes, having a filler of marble crumbs and simple lightweight aggregate concrete. Jointly with the architects and builders, determinations were made as to the optimum parameters and relief figures for the panels, the cross-sections for the bossages and the pitch between them and so forth.

In addition to the Beskudnikovskiy Combine, special technological lines were also produced at ZhBI [reinforced concrete products plant] No. 21 and at the Korenevo Plant for Construction Materials and Structures. Capabilities have already been created for producing a volume of up to 60,000 cubic meters of exterior wall panels having a relief in white concrete.

The task has been assigned of increasing their production by almost four times during the next few years. Moreover, a solution must be found for the "quality" problem -- the cement plants must produce cement having a gasoline content of 95-90 units instead of the present 71. The lines and departments for such panels must be isolated from the remaining ones and maintained under ideal conditions of cleanliness. Such complicated works and problems are concealed behind the facade of facade panels.

Expressive loge enclosures were on display at the exhibit, including panels involving the use of the same white concrete composition layer. The technology was developed by the Scientific-Research Laboratory for the Physical-Chemical Mechanics of Materials and Technological Processes, jointly with the Losinoostrovskiy Plant for Construction Materials and Structures. Owing to the use of effective matrices, which create a relief surface having various figures, products are obtained that are both handsome and of high quality -- no pores or spots. Such products are already being employed successfully in the erection of apartment buildings.

The exhibit also included panels for lodges and balconies made out of architectural concrete, with an exposed composition of stone and other materials and panels having handsome and weatherproof polymer cement facings. The NIL [Scientific Research Laboratory] of the Main Administrative Board, jointly with USSR Minkhimprom [Ministry of the Chemical Industry], created an anti-adhesion facing for metal forms in which architectural concrete products are produced. Such forms and also the high quality facade elements produced in them are to be seen at the exhibit.

The scientists and production workers of NIL and the Losinoostrovskiy Plant introduced improvements into the production of loge enclosures having ceramic facings. This made it possible to use new types of relief and multi-color ceramics, which create an attractive interplay of light and shadows on the screens of loges and balconies. It is believed that the extensive use of such products will promote improvements in the exterior appearance of loges and balconies on buildings under construction. It is unfortunate that as yet this important element of a facade more often than not appears as an untidy spot on many buildings, rather than as a decoration on the exterior portion of buildings.

Beyond any doubt, the attention of visitors to the exhibit will be drawn to the reinforced concrete panels having a stone-like composition, used in the

construction of a complex of buildings at the Center for International Trade and Scientific-Technical Contacts With Foreign Countries. The exterior portion of the panels appears as a very effective "readable" and exposed layer of decorative coarse aggregate, with use being made for this purpose of grey granite crushed stone, fraction 10-15 mm, obtained from a quarry in the North Caucasus. The exposing of the granite layer is carried out using a chemical inhibitor for the setting of the cement and also by removing the weak solution portion of the concrete using special mechanical brushes.

A great amount of work has been carried out in connection with the creation of a technology and equipment for the mass production of these unique panels by the KTB [design and technological office] of Mosgorstroyaterialy by an SKTB [special design and technological office] and by Plant No. 11 for Reinforced Concrete Products. The work performed by these collectives was recognized with the issuing of a diploma at the "Koneko-78" International Exhibit at Bratislava and by the conferring of the state Badge of Quality upon the product.

The displays at the exhibit reveal that a substantial expansion has taken place in the variety of facade elements for buildings that are finished in ceramic. Indeed, it was not too long ago that industry was able to provide the architects with only an extremely limited selection of facade ceramics. This scanty selection resulted in a dismal monotony of facades for completely prefabricated buildings. The situation is quite different at the present time. A rich palette of ceramic facings is available. There are panels with ceramics in all colors of the rainbow and various figures, reliefs and dimensions. Nor do we have in mind here only exhibit models. If you visit Troparevo, Yasenevo, Teplyy Stan and other new regions of the city, you will see not only attractive individual buildings but also expertly finished entire housing developments.

Deserving of special mention at this point is the Dedovsk Ceramics Plant, where the production of facade ceramics has been converted over completely to an industrial basis. The obsolete forges and tunnel furnaces have been replaced here by modern high-speed conveyer lines on which all operations have been mechanized and automated. This year the production of facade tiles has been increased to 230,000 square meters (two years ago the figure was only 38,000 square meters). Today there are many tens of different types of tiles, instead of just 5-6 as was formerly the case.

A large section of the exhibit is occupied by prefabricated elements for the exterior walls of unique buildings; they are finished off in marble, travertine, dolomite or other valuable stone materials. It is pleasing to note the degree of care that goes into the finishing off of the surfaces, the preparation of the bossages in the reliefs and the installation of the ceramics, glass-mosaics and natural stone slabs. All of the new types of products have excellent facial surfaces and minimal geometric tolerances.

It is obvious that the industrial workers are concerned with the manner in which the products they produce are installed in the facades of buildings by

the builders. The plant workers zealously monitor the panel installation work, particularly the filling in of the seams between panels and at those points where window and exterior door units adjoin panels. It is their wish that the panels do not lose their marketable appearance during the course of installation. Unfortunately, this happens quite often: the plant panel is in excellent condition and yet it is installed on a building with gaping cracks and the solution and bitumen are applied in a very poor manner. Yes the seams are caulked in such an untidy manner that it is even unpleasant to just glance at the facade.

Certainly, the cleanliness of such work is largely dependent upon the installation workers. Thus, for the purpose of aiding them in their work of caulking the seams, the plant workers created new types of handsome and reliable hermetic sealants, types which can be employed on facades without leaving 'spots.' These hermetic sealants are displayed in the new Glavmospromstroyaterialy Pavilion together with excellent window and exterior entrance door units and also many other products intended for use in improving the architectural appearance of buildings.

It is appropriate to mention that the exhibit pavilion itself was constructed using new and efficient facade panels and that the territory surrounding it was laid out using paving elements of various shapes, which were also mastered only recently by enterprises of Glavmospromstroyaterialy using the NIL technology. Thus the exhibit buildings, installations and territory, together with the wonderful displays gathered here, have become a type of standard for the manner in which the facades of buildings should be finished off and the territories around them organized in the proper manner. This standard is now in operation. It has been repeated and not on just one occasion; it has been employed in many unique buildings, on olympic construction projects and in new housing regions in Moscow. The architects and builders will use it as their basis for designing the appearance of tomorrow's new construction projects in our beautiful city.

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CONSTRUCTION, CONSTRUCTION MACHINERY, AND BUILDING MATERIALS

STIMULATING HIGH QUALITY THROUGH BONUSES

Moscow EKONOMICHESKAYA GAZETA in Russian No 48, Nov 79 p 7

[Letter of USSR Gosplan, USSR State Committee for Labor and Social Problems, USSR Ministry of Finance and AUCCTU dated 20 August 1979: "On Procedure for Crediting Economic Incentive Funds, Awarding Bonuses to Workers and Totaling the Results of Socialist Competition for Certain Enterprises and Associations Which Have Limited Opportunities for Above-Plan Output of Products in the Superior-Quality Category"]

[Text] Under present procedure, the document states, actual fulfillment of the plan for the relative share of products in the superior-quality category in the total volume of output is calculated as the ratio of products in the superior-quality category actually produced to the actual total volume of commodity output. This encourages enterprise efforts to overfulfill assignments for output by concentrating on manufacture of products in the superior-quality category. At the same time there are certain cases when associations and enterprises do not have an opportunity for objective reasons to overfulfill assignments for production of products in the superior-quality category, even though the output plan as a whole is overfulfilled on the basis of products in the first-quality category or products in demand which are not subject to certification. This results in nonfulfillment of assignments for the relative share of products in the superior-quality category in the total volume of output, which results in a reduction of incentive funds and loss of the right to bonuses for the principal results of economic activity.

In response to requests that have been submitted USSR Gosplan, USSR State Committee for Labor and Social Problems, USSR Ministry of Finance and the AUCCTU, in agreement with the USSR Central Statistical Administration, explained that in cases when the association or enterprise overfulfills the plan for the total volume of output by virtue of products in the first-quality category or products not subject to certification which are in demand, when, moreover, for objective reasons it has limited possibilities of above-plan output of products in the superior-quality category sufficient to fulfill the plan assignment for the relative share of these products in the total volume of production, USSR ministries and departments and councils of ministers of union republics, by agreement with the respective

trade union organizations, may allow these associations and enterprises to credit economic incentive funds and to award bonuses to workers according to the procedure envisaged for enterprises and associations which fulfill these assignments and to follow the same procedure in evaluating the results of the activity of these associations and enterprises in totaling up the results of socialist competition.

Fulfillment and overfulfillment of plan assignments for the output of products in the superior-quality category is a mandatory condition for adoption of these decisions. When the plan is overfulfilled with products in the second-quality category or products subject to certification but not submitted for certification, this procedure is not applicable.

These decisions are taken by USSR ministries and departments in agreement with central trade union committees with respect to associations and enterprises which are part of all-union and union-republic industrial ministries and departments and by councils of ministers of union republics in agreement with the republic trade union councils with respect to associations and enterprises which are part of republic and nonindustrial union-republic ministries and departments of the union republics.

Adoption of these decisions extends to the relevant associations and enterprises the following rights if they fulfill or overfulfill their plan assignments for output of products in the superior-quality category:

- i. not to reduce the size of economic incentive funds for nonfulfillment of plan assignments for the relative share of products in the superior-quality category in the total volume of output;
- ii. to increase the size of incentive funds for overfulfillment of plans for the total volume of output;
- iii. to award bonuses to supervisory and engineering and technical personnel and employees for the principal results of economic activity, if fulfillment of the assignment for the relative share of products in the superior-quality category in the total volume of production is a principal indicator used in the awarding of bonuses.

Since overfulfillment of the plan for the total volume of production should as a rule be achieved by overfulfilling the plan for output of products in the superior-quality category, the decisions envisaged by this letter may be taken by USSR ministries and departments and councils of ministers of union republics in agreement with the respective trade union bodies only in exceptional cases.

CONSTRUCTION, CONSTRUCTION MACHINERY, AND BUILDING MATERIALS

GREATER USE OF MONOLITHIC HOUSING CONSTRUCTION IN UKRAINE URGED

Kiev STROITEL'STVO I ARKHITEKTURA in Russian No 8, 1979 pp 12-16

[Article by Candidate of Architecture Yu. G. Repin: "For Higher Quality Architecture"]

[Text] Our country has made intense searches recently for ways to further improve the architecture of large-scale construction development. The architectural ensembles of Lazdinay in Vil'nyus, the center of Sochi, the Vostok-1 and Vostok-2 blocks in Minsk, Prospekt Mira in Kishinev, a new buildup in Yerevan, the city of Tol'yatti and certain others testify to definite successes on the part of our architects and builders. This has been achieved thanks to the creative use and application of various styles of housing construction, including monolithic reinforced-concrete construction.

However, it should be noted that the architects and builders of the Ukrainian SSR are greatly in arrears to the republic, since no memorable architectural ensembles of any kind have been created in the Ukraine in recent years. This is especially true of Kiev, where more than half of the republic's architects work.

Positive results in solving the multiple-plan tasks of raising the architectural quality of a buildup can be achieved only with a systems approach. In order to gain success in the large-scale construction of housing, it is necessary to observe a balance of architectural, design and technological factors. In order to create various dominant urban-development motifs, architectural factors are the main thing, and design and technological considerations are secondary, or subordinate. However, in any case, design and technological factors superimpose a definite impression on the formulation of the architectural model for a buildup. Because of this, it is necessary to point directly to the fact that monolithic and prefabricated monolithic housing construction possesses an incomparably greater reserve in modes for architectural compositional expressiveness than large-panel housing construction.

Monolithic housing construction is an effective means for solving diverse architectural problems. Its main distinctive characteristic in

comparison with fully prefabricated construction is large variety, which is expressed in the potential for change in three-dimensional layout solutions and also in composition of the facades.

These well-known principles, unfortunately, are not used adequately in the Ukrainian SSR's construction practice. Of all the housing built of monolithic concrete in the country as a whole during 1968-1978 (about 700,000 square meters of total space), only 75,000 square meters of it were built in the Ukraine, although the natural and climatic conditions here are more favorable for doing this type of building. It must also be kept in mind that Odesskaya, Zakarpatskaya, Chernovitskaya and Krymskaya oblasts are characterized by a seismicity of force 7-8, where large-panel construction is uneconomical and brick construction higher than 7 stories is prohibited altogether.

The necessity for increasing the amount of monolithic housing construction in seismic regions has been pointed out in a number of existing documents, which proposed that UkSSR Gosstroy, UkSSR Gosplan, the construction ministries and Glavkievgorstroy [Main Administration for Construction in the City of Kiev], working with the appropriate scientific-research and design organizations, examine in 1976-1977 the possibility of increasing the construction of housing and public buildings, using monolithic reinforced concrete, three-dimensionally adjustable formwork and slipforms, in the republic's seismic regions and in Kiev.

As was noted in the decisions of the All-Union Conference on Monolithic Housing Construction in Kishinev (October 1978), this type of housing construction has already passed the experimental stage and it should be used in the USSR not only (and not so much) for the erection of various individual structures but also for buildings of large ensembles of high architectural quality. Moreover, the conference devoted attention to the desirability and effectiveness of introducing monolithic housing construction for rural areas, which can speed up fulfillment of the decisions of the July 1978 CPSU Central Committee Plenum.

It must be noted that the Ukraine's architects and builders were pioneers in mastering progressive types of monolithic housing construction. After the Sochi (1966) and Tula (1967) experiments, monolithic housing was built in Donetsk, Yalta, Odessa, Vinnitsa and Dnepropetrovsk. However, for a number of reasons, the construction of monolithic reinforced concrete later practically ceased in the Ukraine, and Kishinev, Alma-Ata, Yerevan and Rostov-on-the-Don captured the palm for first place.

A deficiency of monolithic housing construction, in comparison with the fully prefabricated type, is the low quality of the facing surface of structure that is erected in slipforms. This is caused not only by organizational and technological factors (the misalignment of the forms, irregularity in feeding the concrete, its stiffness, and so on) but also the nonobservance of certain architectural-layout rules during development of the designs, particularly:

noncorrespondence of dimensions of the floor plan to the peculiarities of organization of the flow-line operating group;

the large number of openings in the walls being concreted, transforming them into a concealed framework; and

the presence of a large number of sharp angles.

A deep analysis of the causes of the successes and of the inadequacies of this type of housing construction is required. However, primarily a brief survey should be made of domestic and foreign experience, to establish the architectural-composition and construction-operation characteristics of its various types, and also to determine the more likely regions for construction thereof in the UkSSR and the approximate amounts thereof during the forthcoming five-year period.

In many foreign countries, primarily in socialist countries, a large growth in the amount of monolithic and prefabricated-monolithic housing construction is noted (see the table).

In capitalist countries of Western Europe (especially in the FRG, France and others)

monolithic housing construction is displacing prefabricated-construction technology systems because of its architectural and technological flexibility. A number of original formwork systems and urban-development ensembles have been created, among which the Olympic Village in Munich, a 30-story apartment house in Grenoble, a 46-story apartment house in Cologne, and such substantial structures in Paris as the Defans [transliterated] block ("living rods") of architect E. Ayo [transliterated] and others, can be noted.

Constructional-technological factors exert a considerable influence on forming the architectural solution of a building. Great diversity in design and layout solutions, construction materials, parts, technological methods for erecting buildings, and methods for manufacturing parts and for assembling them are characteristic of modern housing construction. Architecture and structure depend naturally upon operating methods and upon the current status of construction equipment.

Monolithic housing construction with slipforms has definite limitations but it is desirable for point-type housing 16 stories or higher, which corresponds most closely to the characteristics of the erecting technology.

Monolithic housing construction with the use of three-dimensional adjustable formwork has practically no restrictions on the number of stories or on construction conditions. At the same time, it is less characteristic

Specific Amounts of Monolithic and Prefabricated Monolithic Housing Construction in CEMA Countries (in percents)			
Socialist countries		1975	1980
People's Republic of Bulgaria		44	33
Hungarian People's Republic		12	16
Polish People's Republic		3	16
Socialist Republic of Rumania		50	47

for point-type buildings than for plate-type apartment houses, which is explained by the better conditions for organizing the flow-line operation group for erecting buildings of this type.

Large-panel formwork, which enables both point-type and elongated apartment houses to be erected, possesses great flexibility in choice of three-dimensional layout solutions.

What has been said confirms that monolithic housing construction can be classified according to the chief technological feature (the type of concreting formwork).

It is apparent from the cited classification that the types of apartment houses cited in the first to fourth groups are "purely" monolithic. Combined fully-prefabricated monolithic construction-technology systems (the fifth group) are extremely promising, since they combine the plastic advantages of monolithic buildings and high quality of surface finish of prefabricated parts.

The three-dimensional spatial composition of a housing development is formed by the housing buildings and by the open spaces. The primary layout element of housing--the apartment and its components (the dwelling rooms, the auxiliary premises and the outside premises) have been formed into a definite functional structure during the past decade, and in the foreseeable future they will remain unchanged. At the same time, evolution of the residential buildup has been occurring at a more accelerated pace recently, passing through several qualitative stages: the apartment, the housing group, the microrayon and the housing rayon.

The availability of a large number of series of standard apartment-house designs (in comparison with 1960-1970), the three-dimensional spatial expression thereof in the form of the parallelepiped, plates, or a rectangular point element, the development of new series of standard designs based upon the block-sectional method of design, the inclusion within the products line of block sections and apartment houses of rotary and angular elements in the form of a cross, a trefoil or a nonrectangular element, have not dispelled the problem of monotony of housing developments.

One of the main elements of the visual characteristics of a buildup is its silhouette. A leveling of a development in number of stories and maximum simplicity of form of various high, dominant features is the main cause of monotony. This question is the main one for the large-scale buildup of the near future, since, with the need for compactness, a trend toward mechanically raising the number of stories (first the 5-story building, then one of 9 stories, and later buildings of 12-16 stories) without changing the three-dimensional spatial composition of the apartment house has been noted.

The emergence of urban-development trends can be traced in certain examples of monolithic housing construction. Most of the well-appointed buildings made of monolithic reinforced concrete carry the load in

organizing the silhouette of the development. However, there are cases where, with the participation of monolithic apartment houses, an unexpressive buildup is formed. Let us examine four urban-development situations.

1. Selective "piece-by-piece" construction is accomplished in an existing buildup with monolithic apartment houses. The apartment houses, which are erected with the use of slipforms, play the role of high-rise accents among the surrounding 4- and 5-story standard buildup. The construction of 16-story apartment houses made of monolithic concrete in Tula, Fryazino, Vinnitsa, Odessa, and Rostov-on-the Don can serve as examples.

In foreign practice, free-standing apartment houses made of monolithic concrete are allocated a somewhat greater urban-development role. Thus, the purpose of creating an expressive silhouette for the city's center was followed in building a tall laboratory building for the university in Leipzig (GDR).

2. The compositional center of a buildup is formed by a group of monolithic apartment houses. This also is a fairly widely distributed method in domestic and foreign urban-development practice.

Three 16-story apartment houses were built in Donetsk which organized in an original three-dimensional manner the spatial composition of a housing microrayon by the Kal'mius river. The construction of three apartment houses in L'vov is being executed.

The organization of the Pobeda Square ensemble in Leningrad with an eye to urban development is of great interest. Here two 22-story apartment houses made of monolithic concrete appear to be starting a large city highway and simultaneously they enter into the compositional center of the square--a memorial to the heroic defenders of Leningrad.

3. A housing tract is built up with houses made of monolithic concrete. This is the more characteristic case for foreign practice in monolithic housing construction. A complex made up of nineteen 16-story apartment houses that was built in Saska Os' Rayon in Warsaw, as well as the Kempa Pototski (Poland) housing district and Park Floryaska and Redzhiye-II blocks in Bucharest (Romania) can serve as examples of a standard buildup.

4. A large urban-development ensemble, whose creation by other means is practically impossible, is shaped from monolithic concrete.

The impossibility of using other methods and resources is occasioned by the complexity of providing the complex with spatial rigidity and stability or the complexity of its three-dimensional spatial composition. The first circumstance predetermined that the new development of the Sochi health-resort be made of monolithic concrete, since the territory is situated in a seismic (force 8) zone.

**Consolidated Classification of Monolithic Reinforced-Concrete
Housing Buildings, According to the Builder's Methodology
(1--bathroom, 2--parlor, 3--general room, 4--dining room, 5--kitchen)**

Группа и тип здания (Q)	Конструктивное решение (A)	Эскиз (B)	Характерный пример (C)	Технологическое описание (D)
Группа I С применением стальной опалубки	11		16-этажные жилые дома в Туле, Фрязино, Донецке, Ялте, Минске и др. (a)	Точечные односекционные жилые дома
	12		Проект 22-28-этажного жилого дома для Киева (b)	Точечные односекционные жилые дома
Группа II С применением стальной опалубки	21		(a) 3-этажный 140-квартирный жилой дом в Кишиневе	(a) Протяженные многосекционные жилые структуры квартирного типа любой этажности
	22		(b) 22-этажный жилой дом в Ленинграде	(b) Протяженные коридорные жилые структуры любой этажности
Группа III Корпусно-столбовая опалубка	31		47-этажный жилой дом в Кельне (ФРГ)	То же, что 21
	32		3-этажные жилые дома в Ларе (ФРГ)	Любое типологическое решение
Группа IV Мелкошпалтовая опалубка	41	—	—	Любое типологическое решение
	42		46-этажный жилой дом в Париже (Франция)	1. Данный тип опалубки в большинстве случаев является дополнением к другим видам формующего оборудования. 2. Самостоятельное ее применение характерно для нетиповых зданий сложной конфигурации.
Группа V Комбинированная	51		70-этажный жилой дом в Чикаго (США)	Как правило, точечные высотные структуры
	52		16-этажный жилой дом в Кишиневе	1. Данные конструктивные схемы применяются для высотных жилых домов. 2. Столб как правило выполачивается в скользящей опалубке.
	53		31-этажное административное здание	3. Все остальные элементы могут быть как в сборных, так и в монолитных конструкциях.

[Key starts on next page]

Key:

0. Grouping according to leading operating method.

1. Group 1. With the use of slipforms.
2. Group 2. With the use of three-dimensional adjustable forms.
3. Group 3. The large-panel form.
4. Group 4. The small-panel form.
5. Group 5. Combined.

A. Constructional solution.

- A-1.1. With lateral and longitudinal interior and exterior load-bearing walls made of monolithic reinforced concrete.
Monolithic ceiling floors.
- A-1.2. With lateral and internal longitudinal walls made of monolithic reinforced concrete.
- A-2.1. With lateral load-bearing walls in the form of:
 - a "pure" tunnel;
 - with one internal longitudinal wall;
 - with two internal longitudinal walls; or
 - outer walls made of prefabricated members or of small-piece units.
- A-2.2. With longitudinal load-bearing walls.
Internal lateral walls made of prefabricated members or of small-piece units.
- A-3.1. The same as 2.1.
- A-3.2. With lateral and longitudinal interior and exterior load-bearing walls.
Ceiling floors are both prefabricated and monolithic.
- A-4.1. Any of the above-mentioned.
- A-4.2. Framework with stiffening diaphragms.
- A-5.1. Framework-pillar.
- A-5.2. Pillar-wall.
- A-5.3. Pillar with suspended floors.

B. Rough sketch.

C. Typical examples.

- C-1.1a. 16-story apartment houses in Tula, Fryazino, Donetsk, Yalta, Minsk and other cities.
- C-1.1b. The design of 22-28 story apartment houses for Kiev.
- C-1.2. 18-story apartment house in Katowice.
- C-2.1a. 9-story 140-unit apartment house in Kishinev.
- C-2.1b. 22-story apartment house in Leningrad.
- C-2.2. The GLD (French) formwork-equipment system.
- C-3.1. 47-story apartment house in Cologne (FRG).
- C-3.2. 9-story apartment house in Lara [transliterated] (FRG).
- C-4-1. [Blank]
- C-4.2. 46-story apartment house in Paris (France).
- C-5.1. 70-story apartment house in Chicago, USA.
- C-5.2. 16-story apartment house in Kishinev.

D-1.7. 11-story administration building.

D. Typological description.

D-1.1. Point-type one-section apartment house.

D-1.2. Point-type one- or two-section apartment houses.

D-1.1a. Lengthwise multisection apartment-type housing structure of any number of stories.

D-1.1b. Lengthwise corridor-type housing structures of any number of stories.

D-1.2. Lengthwise corridor-type housing structure.

D-1.1. The same as [D-1.1].

D-1.2. Any typological solution.

D-1. Any typological solution.

1. The type of formwork given as an example is additional to other types of shaping equipment.

2. Self-sufficient use thereof is characteristic for nonstandard buildings of complex configuration.

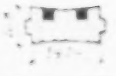
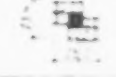
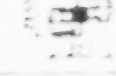
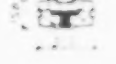
D-2. As a rule, point-type high rises.

1. The given constructional schemes are used for high-rise apartment houses.

2. The column is, as a rule, made with a slipform.

3. All remaining elements can be either prefabricated or monolithic structure.

Typical Solutions for Buildings Made of Monolithic Reinforced Concrete with the Use of Various Types of Formwork (Based on Domestic Experience)

(A)	(B)	(C)	(D)	181			(E)
				X - Constructional Scheme			
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
1. Point-type one-section apartment house	1. Point-type one-section apartment house		1. Point-type one-section apartment house	1. Point-type one-section apartment house	1. Point-type one-section apartment house	1. Point-type one-section apartment house	1. Point-type one-section apartment house
2. Point-type one-section apartment house	2. Point-type one-section apartment house		2. Point-type one-section apartment house	2. Point-type one-section apartment house	2. Point-type one-section apartment house	2. Point-type one-section apartment house	2. Point-type one-section apartment house
3. Point-type one-section apartment house	3. Point-type one-section apartment house		3. Point-type one-section apartment house	3. Point-type one-section apartment house	3. Point-type one-section apartment house	3. Point-type one-section apartment house	3. Point-type one-section apartment house
4. Point-type one-section apartment house	4. Point-type one-section apartment house		4. Point-type one-section apartment house	4. Point-type one-section apartment house	4. Point-type one-section apartment house	4. Point-type one-section apartment house	4. Point-type one-section apartment house

(Table continued on next page)

(D)	(A)	(B)	(C)	(D)	(E)			(I)
					(F)	(G)	(H)	
5	Экспериментальный жилой дом в Ялте КС-16	Киевский институт		Сквозная	$\frac{16}{2.7}$	64	2953	Сейсмичность в баллах Повторено 3 раза
6	Экспериментальный жилой дом в Минске Э-187	ЦНИИЭП жилища		Сквозная	$\frac{16}{2.8}$	64	2680	Обычные условия Повторено в Минске
7	Жилые дома в Кishineve	Молдавский Строй		Объемно-пере- стопная (а) Вскрывающей лестнично- лифтовой (б)	$\frac{13}{2.8}$ $\frac{16}{2.8}$	129 159	4016 4953	Сейсмичность 7 баллов
8	Жилые дома для малых семейных в Ленинграде	Ленинградский		Объемно- пере-стопная	$\frac{22}{-}$	315	5600	Обычные условия Первый этаж нежилой
9	Жилые дома в Ужгороде	Киевский институт		Пролетно- шпаловая	$\frac{9}{2.8}$	144	4800	Сейсмичность в баллах
10	Жилые дома в Москве разных типов	ЦНИИЭП жилища		Объемно- пере-стопная	$\frac{25}{2.8}$	73	9180	
11	Экспериментальный жилой дом в Ялте (вариант для Ростова-на-Дону)	Киевский институт		Объемно- пере-стопная	$\frac{9}{2.8}$	80	5600	218 баллы сейсмичности в баллах для Ростова обычные условия
12	Варианты решения жилых домов в "Комсомольском" районе Киева	Киевский институт		Сквозная	$\frac{25}{2.8}$	184 15	5880 3570	Первое и второе этажа нежилые

Key:

B. Sequence number.

A. Designation of building and place of construction.

A-1. Apartment house in Sochi.

A-2. Apartment house in Tula.

A-3. Apartment house in Fryazino (Moscow Oblast).

A-4. Apartment house in Donetsk.

A-5. Experimental apartment house in Yalta ES0-18.

A-6. Experimental apartment house in Minsk E-187.

A-7. Apartment house in Kishinev.

A-8. Apartment house for small families, in Leningrad.

A-9. Apartment house in Uzhgorod.

A-10. Apartment house in Naberezhnyye Chelny.

A-11. Experimental apartment house for Yalta (variant for Rostov-on-the-Don).

A-12. Variants of solution of apartment houses in "Komsomol'skiy" Izhd [experimental housing rayon] in Kiev.

B. Design organization.

- B-1. Studio imeni Akademik Vesnin, TsNIIOMTP [Central Scientific-Research and Experimental Design Institute for the organization, Mechanization and Technical Aids for Construction].
- B-2, B-6, B-10. TsNIIEP zhlisheha [Central Scientific-Research and Design Institute for Standard and Experimental Design of Housing].
- B-3. Mosgrazhdanproyekt [Moscow Institute for the Design of Housing and Public Buildings].
- B-4. DonetskproyektNIISP [Scientific-Research Institute of the Construction Industry for the Design of Housing and Public Building Construction in Donetsk] of UkSSR Gosstroy.
- B-5, B-9, B-11, B-12. KievZNIIEP [Kiev Zonal Scientific-Research and Design Institute for Standard Experimental Design of Housing and Public Buildings].
- B-7. Moldoprostroy [Moldavian SSR State Design Institute for Construction].
- B-8. Lenproyekt [Institute for the Design of Housing and Public-Building Construction in Leningrad].

2. Rough sketch.

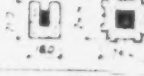
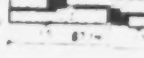
a. Type of formwork.

- B-1, B-2, B-3, B-4, B-5, B-6, B-12. Slipform.
- B-7a, B-8, B-10, B-11. Three-dimensional, adjustable form.
- B-9. Slipform for staircase-elevator unit.
- B-3. Large-panel form.

b. Main indicators for the apartment house.

- 1. Number of stories and height per story.
- 2. Number of apartments.
- 3. Living space, square meters.
- 4. Specifications for construction elements.
- 1-1. Elasticity of force 8. Repeated 3 times.
- 1-2. Ordinary specifications. The first story is partly nonresidential, repeated in Dostov.
- 1-3. Ordinary specifications. The building is divided into two increments, repeated in Ineopetrovsk.
- 1-4. Working workings. Repeated 3 times.
- 1-5. Elasticity of force 8. Repeated 3 times.
- 1-6. Ordinary specifications. Repeated in Moscow.
- 1-7. Elasticity of force 7.
- 1-8. Ordinary specifications. First story is nonresidential.
- 1-9. Elasticity of force 8.
- 1-10. [Blank]
- 1-11. For Valla-elasticity of force 8. For Vostok-elasticity specifications.
- 1-12. The first stories are nonresidential.

Typical Solutions for Buildings Made of Monolithic Reinforced Concrete
with the Use of Various Types of Formwork (from Foreign Experience)

(A)	(B)	(C)	(D)	(E)			(F)
				Этажная площадь, м ²	Объем, м ³	Жилая площадь, м ²	
1	Вентильный дом в микрорайоне Будапешт-1		Скелетная	12-16	55-112	3390	Первый этаж нежилой
2	Полтора этажа в микрорайоне Будапешт-1		Скелетно-перегородочная	16	420	-	Первый этаж нежилой
3	Полтора этажа в микрорайоне Будапешт-1		Скелетная с перегородочными стенами	19	175	4580	Первый этаж нежилой
4	США, микрорайон Будапешт-1		Скелетно-перегородочная с перегородочными стенами	20-195	-	-	Каркасно-столбовая система
5	Болгария, микрорайон Будапешт-1		Скелетная	16	60	-	Первый этаж нежилой
6	Франция, микрорайон Будапешт-1		Перегородочная с перегородочными стенами	30-100	168	-	Первый и последний этажи нежилые
7	Франция, микрорайон Будапешт-1		Перегородочная с перегородочными стенами	35-96	480	17500	Каркасно-столбовая система с диафрагмами жесткости
8	Англия, микрорайон Будапешт-1		-	30	196	-	В 1-9 этажах - однокомнатные, в 11-12 этажах - двухкомнатные квартиры
9	ГДР, микрорайон Будапешт-1		Скелетная	36-142	-	-	-
10	ГДР, микрорайон Будапешт-1		Скелетная	22	120	-	-

Примечания:

1. Типы Nos. 1-10.

А. - микрорайон Будапешт-1, микрорайон Будапешт-1.

А-1. - микрорайон Будапешт-1, микрорайон Будапешт-1.

- A-1. Poland. Apartment house in Polska G6s' Rayon in Warsaw.
- A-2. Poland. Apartment house in Warsaw (variant in Katowice).
- A-3. USA. The Lake Point Tower apartment house in Chicago.
- A-4. Bulgaria. Apartment house in Ivan Vazov micro-rayon in Sofia.
- A-5. France. Apartment house in Grenoble.
- A-6. France. Le Orison paired apartment house in Rennes.
- A-7. England. Apartment house in Chikem [transliterated].
- A-8. GDR. High-rise building of Karl Marx University in Leipzig.
- A-9. FRG. Apartment house in Ludwigshafen.

- B. Time of construction.
- C. Rough sketch.
- D. Type of formwork.
- E. Basic indicators for the apartment house.
- F. Number of stories and height of the apartment house, in meters.
- G. Number of apartments.
- H. Living space, square meters.

I. Comments.

- 1-1, 1-2, 1-3, 1-5. The first floors are residential.
- 1-3. Framework and column scheme.
- 1-6. The first and next floor are nonresidential.
- 1-7. Frame and column scheme with stiffening diaphragms.
- 1-8. 1-room apartments on the 1st-9th floors, 2-room apartments on the 11th-29th floors.
- 1-9, 1-10. [Blank]

In designing the Teatral'nyy spusk housing complex in Rostov-on-the-Don, the designers' collective of KievZNIIFP [Kiev Zonal Scientific-Research and Design Institute for Standard and Experimental Design of Housing and Public Buildings] made an attempt at an optimal solution of a complicated urban-development task by means of monolithic housing construction. The complex was located in the center of the city between Prospekt Ingel's and the river shore of the Don, along an axis of the theater building for opera and ballet. The land section has a substantial slope in the direction of the shore.

The complex is a three-dimensional spatial structure of a varying number of stories (12 to 18) that is complicated in plan--continuous from the left of the axis and discontinuous (made up of 3 groups) from the right. This facility is already being constructed, using a three-dimensional tunnel-type adjustable formwork.

With the development of designs for the layout and the buildup, the choice of type and use of monolithic apartment houses is justified not just by urban-development requirements but also by the status of the construction-industry base in the specific area. In large cities of the Ukraine (Kiev, Zhar'kov, Dnepropetrovsk, Zaporozh'ye and Odessa), where there are high-capacity large-panel housing construction bases, monolithic construction will supplement it and should be used only for the construction of special types of apartment houses or of large urban-development ensembles.

Several other tasks are being solved for cities in which there are no KPD [large-panel housing-construction] enterprises. Monolithic apartment houses of various architectural-compositional solutions can be built in these cities.

Monolithic housing construction that uses industrialized types of formwork can have both a general solution, which characterizes the housing in general, and, simultaneously, a specific solution, which is inherent in the given method of construction.

Unlike large-panel housing construction (and in most cases of brick), apartment houses made of monolithic reinforced concrete can obtain a more pliable three-dimensional spatial structure not only through irregularity of the floor design but also through a height differential of the units. Such a compositional method is difficult for large-panel housing construction where the joints of the terrace are to be protected against water and the number of standard sizes of construction items is increased.

Questions of tectonics are closely linked with questions of pliability, which, in turn, are inseparable from the overall problem of moldability, which, for monolithic housing construction, becomes paramount.

The compositional methods that are typical for structures erected by any other method are inherent in apartment buildings made of monolithic reinforced concrete. However, the tectonic structure of such buildings has its peculiarities, which are associated with the plastic properties and potential for shaping monolithic concrete. Out of all the diversity of tectonic methods for monolithic housing, following are the main ones:

bulkiness--the three-dimensionality of the building, the continuity and monolithicity of the three-dimensional spatial composition, and pliability through the separation of volumes within the unity of the overall composition;

continuity of facade planes, their "run-over," and curvature of the surface or their joining at an angle other than a right angle;

dynamic tracing of facades through artistic treatment of the surface, the potential for an offset of openings by story and by diversity in their sizes; and

variation of the tectonic structure of the facades with identical three-dimensional spatial solutions.

What has been said does not exhaust the list of positive qualities of the monolith or its inadequacies. This question is subject to further examination by scientists, architects, manufacturing engineers and, of course, builders. Today one can assert with confidence that, by means of industrialized types of monolithic housing construction, the republic's architects are obtaining a wide range of architectural resources for the creation of emotional architectural ensembles. The republic needs

monolithic housing construction, which would consider the architectural requirements of urban and rural construction and also the real engineering potential of its execution, in its own program.

This is the word for leading scientists and specialists in this field.

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CONSTRUCTION, CONSTRUCTION MACHINERY, AND BUILDING MATERIALS

ARCHITECTS TO HAVE GREATER ROLE IN RURAL CONSTRUCTION

MOSCOW STROITEL'NAYA GAZETA in Russian 23 Dec 79 p 3

[Article by V. Vishnyakov: "The Architect Has Come to the Village"]

[Text] Notes from the 9th Plenum of the Administration of the USSR Architects' Union.

As has already been reported, the 9th Plenum of the Administration of the USSR Architects' Union, which discussed questions of the architectural shaping of rural communities and the creative problems of architects, convened 20-21 December in Moscow.

G. Orlov, First Secretary of the Administration of the USSR Architects' Union, opened the plenum. Secretary of the Administration of the USSR SA [Architects' Union] G. Il'inskiy delivered the main report, and Chairman of the Administration of the Moscow Organization of the USSR SA V. Stepanov, Chairman of the Leningrad Organization of the USSR SA S. Speranskiy, Director of TsNIIEP grazhdan-sel'stroy [Central Scientific-Research Institute for the Experimental Design of Rural Housing Construction] B. Ma-khan'ko, members of the Administration of the USSR SA, representatives of the architectural society, and agricultural workers and builders from the country's republics, krays and oblasts joined in the discussions.

Gosgrazhdanstroy [State Committee for Public Building Construction and Architecture] Chairman G. Fomin spoke to the plenum.

USSR Minister of Rural Construction S. Khitrov, sector chief of the CPSU Central Committee Construction Section A. Kosogov, and CPSU Central Committee Construction Section instructor A. Koshkin, participated in the plenum's work.

The plenum adopted an appeal to the country's architects who are participating in the major work on transforming rural communities.

During a break between sessions, while strolling among the displays spread out in the foyer, I talked with one architect who is known as an expert on the village. And here he disconcerted me:

"We do not really know the village. We design the village house, of course, but that isn't what I mean. I mean vocational sophistication, do you understand? About the architectural ear, so to speak. Architecture for all the centuries has turned its gaze to the city."

I nodded, but only later--during the plenum's session--did I comprehend how accurate this remark was.

About 90 million people reside in our villages and hamlets today. A third of all housing construction in the country is in the village, and the volume of design work for construction in the countryside is 140 million rubles per year. In recent years the state has allocated gigantic resources to reconstruction of the village. Much has been done. Including that done by architects. But many mistakes also have been made. And some of them are on the conscience of the architects.

Well, here is a typical and not so ancient example of straightforwardness in implementing the rural reconstruction program contemplated by the party, which, I think, Ilinskiy, Secretary of the USSR Architects' Union Administration, spoke about in his report. The mission is to overcome the considerable differences in living conditions in the city and in the village. The method is to consolidate the village by eliminating so-called settlements "without a future," and by building them up with urban-type buildings--rapidly and economically, as is said. The reportmaker named an astounding figure: it was found that 41 percent of the rural communities in Poltavskaya Oblast' alone, 41 percent in Khar'kovskaya Oblast, and 85 percent in Dergachevskiy Rayon had fallen into the "without a future" category. The authors of this simplified scheme had not considered all the negative social and economic consequences of such measures.

The family plots that were abandoned had left the realm of economic use, the outflow of villagers to the city was not reduced, and the birth rate continued to decline--so the village grew old, and the loss of housing still completely suitable for use turned into large state expenditures on compensation therefor (computations have shown that, with large-scale collective relocation, more than 50 billion rubles will be required just to make up for the housing inventory torn down). This is the price of rapid "economizing." Something similar also happened in Georgia.

But here in Belorussia, where transformation of the structure of rural quartering is being done on the bases of a comprehensively substantiated program for the distribution of productive forces and the resettlement connected with it, this process is going on successfully.

errors occurred not because the general path for reorganization of rural communities was incorrect but because its implementation did not always provide for adequate continuity in the development of the village.

The address of sovkhos director I. Vasil'yev, who shared thoughts about what is necessary and what is not necessary in building for the village, sounded a sharp emotional chord during the plenum. By way of illustration, he cited living examples from his Verkhnyaya Troitsa settlement. This name, surely, is known to many. It has been making the pages of newspapers and magazines and it has been sounded from speakers' rostrums, being uttered, as a rule, with a touch of pride. And suddenly a man who has participated most actively in the creation of this experimental demonstration settlement and has been living in it, announces that the residents "are not entirely satisfied with their settlement."

The settlement apparently has everything--both comfortable housing with the conveniences and various servicing establishments, but the peasants yearn for the cow and the crowing of the rooster. Recalling the fact that the output of auxiliary economic activities yielded no small addition to the public pantry, one should not forget either about another aspect of the problem. Work in auxiliary economic activity with children brings up workers who will love the land and will know how to work on it.

The orator was rewarded with applause, and then another person ascended the rostrum--I. Medvedev, chief architect of Lipetskaya Oblast, who invited those present to visit a certain Chastaya Dubrava village, where, "instead of little houses under thatched roofs, attractive five-story housing has risen up, in which, as is said, the workers of a "bee-raising complex" reside without rejoicing.

who is right? Yes, most likely the main reportmaker, who asserted that the more correct approach to solving this problem is a skillful correlation of the private plot with the sectional apartment houses that are substantiated by the specific conditions, keeping in mind the demographic peculiarities of the population, the location of the particular village, special agricultural production and many other things. And there is more to consider. Consider the actual complications of day-to-day existence, and try to listen to all its requirements with a view to satisfying them and to guiding that existence.

They say that there's no arguing with taste. But they argued here. And fairly heatedly. The fact is that in the near future 60 plants that will produce houses planned by offices that design for reinforced concrete will be moved to the village. The chairman of the Moscow Organization of the USSR Architects' Union V. Stepanov, after noting reasonably that faceless identical boxes "will not take root in the rural dweller's heart," stated that the only way to diversify them is to decorate the facades, to which the Moscow architects who are sponsors for construction projects of Ne-chernozem'ye [nonchernozem zone of the RSFSR] are dedicating hours of their spare time.

Speaking after him, TsNIIEP grazhdansel'stroy director B. Makhan'ko reported the decoration of reinforced-concrete homes with absurd props that had nothing in common with either nationality characteristics or with people's architecture, reproaching, at the same time, the theoreticians of architecture and the Architects' Union, who apparently had not noticed the threat of tastelessness that was impending.

It is easier to convince a person that black is white than that his taste is not above reproach. And it is not always necessary to convince. But in the given case we are talking not about one man but about millions of rural dwellers, who will experience the completely real educating (or antieducating) effect of the houses being stamped out by the SSK's [rural construction combines]. While it is still not too late, it seems necessary, nonetheless, to evaluate their esthetic qualities objectively. It would seem that this is completely within the powers of our theoreticians.

Moreover, in searching for diversity and beauty of rural industrialized housing, one cannot be restricted only to the decor. For there is a potential, while remaining faithful to the industrialized method, to provide flexibility in planning by means of the final assembly elements. There are also appropriate developments and suggestions. It would seem that this is a promising area.

Thus there is a multitude of questions. As in any new business. But nowhere on a greater scale than here. "In light of our tasks, do we know the life of rural dwellers enough to solve correctly questions of organizing the buildup of villages?" asked the reportmaker. And he himself answered, "Unfortunately, not always."

The appeal adopted by the plenum is stimulating the country's architects to stay in step with social, scientific and technical progress, to strengthen creative collaboration with all specialists who are working in the rural construction field, to raise the vocational mastery thereof, and to work more actively in the village. It is necessary above all to respond to the appeal with deeds.

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CONSTRUCTION, CONSTRUCTION MACHINERY, AND BUILDING MATERIALS

PROBLEMS, POSSIBILITIES FOR CEMENT

Construction Projects Lack Cement

Moscow STROITEL'NAYA GAZETA in Russian 9 Jan 80 p 3

[Article: "More Cement for Construction Projects"]

[text] Superintendents at many construction projects and reinforced concrete products plants begin their work day on the telephone "forcefully demanding" cement. Their messengers spend all their time at the cement enterprises. Construction workers have never before experienced such a shortage of cement.

Why is an industry that today produces much more cement than any other country in the world not in a position to satisfy the needs of construction projects and plants? The crux of the matter is in the disproportion of supplies resulting from a number of enterprises in the industry that chronically fall behind. For this reason there was a shortfall of several million (million!) tons of cement. According to supply agency orders, these million tons were intended for construction projects and precast reinforced concrete plants that just did not receive them.

An especially difficult situation has been taking shape in Uzbekistan. Two technological production lines that use the dry method of production and have a production capacity of 1,150,000 tons each were put into operation several years ago at the Navoiysk plant. But to put something into operation does not mean it will operate, for you can lead a horse to water but you can't make him drink. Its projected productivity has only partially been put to use. This one plant alone failed to supply several hundred thousand tons of cement to republic construction projects during the last year. Practically no one tries to hide its failure to deliver supplies. About 15 (of 80) cement enterprises still do not meet their goals. Numbered among them are the Karagandin, Starooskol', Kamenets-Podol', Gornozavod, Checheno-Ingush, and other plants.

There is also a problem with the fact that a majority of enterprises that lag behind are located in places where industrial, agricultural and civil-housing construction is concentrated. Therefore, their poor work directly affects the tempo of erecting sites that are important for the national economy. Thus, the cement industry has today become the chief reason for the lag in large construction projects in a number of cases.

And this is said about an industry that just recently had firmly occupied a leading position in All-Union socialist competition. What has led to this current failure? There are several causes. The basic reason is poor maintenance of technological equipment. This is precisely why the basic apparatus of cement plants--the rotary furnaces--are often shut down for emergency and unplanned repairs. Lining them for such reasons mean that projected time periods of service cannot be sustained. And every shutdown of a complex heat engineering unit means a loss of hundreds of tons of cement.

Several years ago the cement industry's maintenance service was reorganized with good intentions. The maintenance shops at the plants were removed and placed under the authority of a specialized subdivision in the Soyuztsemremont [Union Cement Maintenance] system. However, due to a number of reasons, chiefly of organizational character, Tsemremont is not coping in the best manner possible with the responsibilities which are entrusted to them. The complex equipment at cement plants does not receive the necessary care and maintenance. The consequence of such organizational errors retards the productivity of basic technological equipment at many plants which is reflected in the situation at job sites that do not receive the cement which was intended for them.

At the same time one effect of the turnover of personnel is the increased deterioration of equipment at a number of enterprises. It has taken on threatening dimensions at a number of different plants. These are the conditions at the Navoiysk, Checheno-Ingush, Karachayevo-Cherkes, and several other cement enterprises.

It has now been decided to reinstate maintenance services at cement enterprises. Only the large scale work of capital repairs and modernization of basic equipment have been left to the specialized Tsementremont. It is very important that this reinstatement period not be overly drawn out.

While quickly restoring maintenance service at plants, the problem of increasing turnover of personnel, especially of the leading specialists, should be dealt with no less persistently. One of the decisive ways is to provide cement workers with comfortable housing and preschool institutions for children and to establish the necessary cultural amenities and everyday services. Builders are also called on to add their contribution, which is of no small importance. It is very important that allotted funds for erecting housing units and cultural and everyday service buildings are put to full use so that the planned projects will be put into operation on time.

Much can be done in this regard by the cement workers themselves. A clear conformation of this is found in the experiences of such leading industry enterprises as the Angar cement and mining combine, the Sebyakov cement plant, the "Akmyantsement" and "Novorostsement" production combines, where concern for the individual person and for improving working conditions are placed on the same level as fulfilling important production goals. The personnel turnover is minimal here. The enterprises work at a consistent pace. Year in and year out, month after month, the plans are fulfilled and exceeded. Unfortunately, the experience of these top-rate people does not extend throughout the industry with the persistence as it deserves.

Activating socialist competition among large kiln machinists who work at 185 meter rotary furnaces and totally new technological production lines that use the more progressive dry method can provide just as great reserves for increasing the production of cement.

Unfortunately, this latter method is not devoid of constructional defects. It is the duty of constructors, designers and machine assemblers to quickly eliminate the flaws that have shown up when putting new equipment into operation. In this way, they will succeed in solving two important problems: to provide the construction projects that are located nearby with an abundance of cement and to give the "green light" to modern highly productive equipment. The cement industry's future is in the dry method of production. It must be hastened in every way possible.

Cement plant personnel are also counting on the fact that the mechanical-maintenance enterprises in the USSR Ministry of the Construction Materials Industry and the Ministry of Construction and Road Machine Building will at last begin to provide them with high quality spare parts. Actually, a significant portion of the breakdowns that occur in the cement industry result from their extremely low quality. Eliminating this problem would mean a great reduction in idle time of basic cement apparatus that is not provided for by the plan.

A crucial and urgent problem for party, trade union and komsomol organizations and economic administrators in the industry is to get the cement industry out of this bind. "There shall be no cement enterprise that fails to fulfill the plan"--such a motto must become a reality in the final year of the Tenth Five-Year Plan.

Production, Cement Grades Problems

Moscow SOTSIALISTICHESKAYA INDUSTRIYA in Russian 13 Dec 79 p 2

[Article by special correspondent Yu. Bychek: "The Controversy Surrounding Cement"]

[Text] The article by A. Boldyrev, Deputy Minister of the USSR Construction Materials Industry, "A Second Product,"

published on 24 July of this year aroused mixed feelings. Really, what better way is there of dealing with technological waste products from metallurgy than using them as cheap and high quality raw materials for the cement industry instead of burying them. But we should be careful when placing the production of slag Portland cement among the number of basic methods for utilizing metallurgical slag. Less than a third of the waste may be used for this purpose and only 20 to 30 percent of the useful properties of this third may be utilized.

A. Boldyrev complains as if science has not found effective means of utilizing the 23 million tons of steel smelting, electrophosphorous and other types of slag that are annually added to the previous metallurgical "supply." It is impossible to agree with this. This is such a means--the production of slag alkaline cement. On the basis of this, by the way, concrete with exceptionally high grades of strength are obtained--up to "1,400" which exceeds the "ceiling" of slag Portland cement by a factor of 3 or 4. The production of slag alkaline cement materials has less than half the .

But it is much easier for the ministry to increase the production of traditional types of cement with admixtures from ground blast furnace slag than to trouble itself with organizing the production of new types that require other forms of technology.

Thus, no matter how many of A. Boldyrev's economic and ecological considerations may support the rate of growth of the gross indicators to the detriment of qualitative considerations, such a course does not answer either the problems of protecting the environment or the interests of capital construction and the national economy.

A. Savel'ev, chief specialist of Pechory NIPI [Scientific Research and Design Institute of Petroleum]; V. Shevkoplyas, engineer at the "Promstroy" trust; I. Lubenskiy, engineer at the "Komigazstroy" trust.

This letter is only one of the readers' responses to the article, "A Second Product." Engineer A. Kapliyev from Kursk, V. Sizov, a candidate of technical sciences from Moscow, assistant professor I. Gvozdarev of VZISI [All-Union Correspondence Institute of Engineering and Construction], A. Popov, professor of the Moscow Architectural Institute, engineer N. Proskuryakov, and others all wrote to us of their disagreement with A. Boldyrev's point of view.

How do the supporters wish to correct the present course of cement production?

The time has long since passed when builders were pleased with any type of cement. Today, the first consideration is quality. Frankly speaking, builders find little joy in the fact that the average grade of cement is gradually increasing and now exceeds "400" since there is no way possible to obtain such a degree of strength in the items for which it is needed without using one and a half or even two times as much cementing material.

In general, the volume of production for average grade cement comprises more than four-fifths of the total volume. The specific proportion of cement with higher strength (without admixtures) that was produced over the last few years fluctuated near one percent. And this is about four times greater than the minimum amount needed, as cement workers themselves admit. Workers at the USSR Ministry of the Construction Materials Industry criticize builders for using high grade cements in preparing plaster and brick laying mixtures, where the higher strength is completely unnecessary. But they themselves are not engaged in increasing the production of low grade cement ("150," "200") although the demand for it comprises 20 million tons annually.

Thus, two points of view for the same problem. Which is closer to the truth?

Interview One

It is with First Deputy Minister of the USSR Construction Materials Industry A. Boldyrev.

"Three years ago, due to I. Gvozarev's report, a USSR Gosplan GEK [State Commission of Experts] was occupied with the problem of cement and came to the conclusion that the Ministry was correctly orienting its enterprises."

The conclusion of GEK is a very serious argument. And, while arranging for a meeting with chairman, professor G. Krasnikovskoy, I was sure that this meeting would help to conclusively "dot the i's and cross the t's."

Interview Two

"During the course of several months," Georgiy Vladimirovich informed us, "a special GEK subcommittee studied the question. In its first version the conclusion differed so sharply that it was necessary to make several changes in the composition of the subcommittee and to name a new chairman and a scientist-secretary. As a result a second version of conclusion was prepared which was signed by the majority of subcommittee members without any alterations."

Establishing the truth by eliminating the opponents? I must admit such a method seemed a little strange to me. Yet three thick volumes of "Cement Matters" testify to the fact that this is exactly what happened.

Interview Three

"It is possible to judge the 'objectivity' of the investigation," said L. Mahalov, director of the USSR Gosstroy Construction Industry Division, "by this fact. The commission of experts asked the opinion of executives in contract ministries and the Construction Industry's NTO [Scientific-Technical Organization] concerning the state of affairs in the cement industry. Then they shelved these opinions since the prepared rosy conclusion was not written in...."

Thus, what types of cement and in what quantities are needed today and will be needed tomorrow in order that their effectiveness would be at a maximum--this is the main question which my interlocutors did not conclusively answer. According to the opinion of A. Boldyrev and Yu. Kalugin, Director of the USSR Gosplan Construction Materials Division and A. Dmitriev, Director of the NII [Scientific Research Institute] on Cement who support him, it would be difficult to say that slag Portland cement is not the best material in terms of long range prospects. It is economical to produce since it requires half as much fuel and energy when compared with pure clinker types. And it meets the technological features of the basic consumer of cement--the precast reinforced concrete industry.

The arguments are, unquestionably, serious. Yet the objections also carry no less weight. Here is one of them. On the average for the country a complete technological cycle at precast reinforced concrete plants is completed once every 24 hours, and 2 or 3 times at a number of Main Moscow Construction Materials enterprises only. The reason for this is that pure clinker cement with no admixtures is used here.

This fact, reported to me by E. Lukiyenko, Director of USSR Gosstroy Subdivision on Cement, provoked the natural question: how to reduce the consumption of fuel and energy in capital construction more advantageously by means of "diluting" the production of admixtures at cement plants or by means of doubling and even tripling the productivity of ZhBI [Reinforced Concrete Industry] plants. Or can both methods be combined?

"As far as I know no one has conducted such comparative research," said K. Mikhaylov, Director of NIIZhB [Scientific Research Institute of Reinforced Concrete].

Such a direct and frank answer from the administrator of the leading scientific research organization on concrete and reinforced concrete problems.

A worker at USSR Gosplan, Yu. Kalugin, declared that such computations have been done, and as a result, a superior product of the first degree was derived. It is true, he noted, that it is extraordinarily difficult to "achieve" economy at ZhBI plants since many hundreds of these enterprises are dispersed among ten different departments; this is much easier to do at cement plants where, practically speaking, there is a single boss.

And what does Yu. Kalugin think relative to the fact that the USSR Ministry of the Construction Materials Industry does not wish to recognize that slag alkaline cement should be used? He does not reject the innovation directly.

"The idea is good," he says, "but undeveloped. Scientists have not yet worked on it one year...."

Meanwhile, the history of this idea goes back more than two decades, say his opponents. It is not just laboratory and theoretical history. The irrigating system troughs in Tatarbunary, constructed from slag alkaline concrete, after 15 years of use, doubled their strength and achieved a grade of "800." Regular cement troughs for the same period of time had to be replaced three times. And this is by far not the only example. Many others were brought up at the All Union Conference on slag alkaline cement which convened this summer in Kiev. At this conference it was also reported that any granulated slag, not just blast furnace slag, may be used to produce slag alkaline cement; that any aggregate may be used as a base for concrete and not just aggregate that has been washed or which has a certain size; that each ton of slag used for this purpose saves three rubles and more by diluting Portland cement with ground slag which is satisfactory for cement workers.

It seems to us that the most important thing is not so much the rubles themselves, but the fact that the cement industry's work should reflect to a greater degree the basic direction of technological progress in capital construction. We cannot justifiably evaluate the merits and deficiencies of any production process in any other way than by the final result for the national economy. And this clarity, judging from the specialists' answers to the questions taken from readers' letters, does not exist. And, apparently, it is premature to bring this problem "to a close." It must be studied from all angles.

Improved Quality of Cement

Moscow STROITEL'NAYA GAZETA in Russian 9 Dec 79 p 3

[Article by professor S. Mironov: "The Grade of Cement is Related to the Grade of the Plant"]

[Text] Portland cement is often received by NIIZhB [Scientific Research Institute for Steel Reinforced Concrete] laboratories from the Voskresen plant not far from Moscow. And, as a rule, after testing it against the standard it is found that the actual grade is below that which is recorded. Instead of "500" it is "400" or even "300."

But is it really only one plant that is guilty of this? In the last 10 years, based on NIIMosstroy [Scientific Research Institute for Bridge Construction] data, cement, was received at construction sites in the capital from the Belgorod, Shurov, Mikhaylov, Bryans and Podol' plants. And, as a rule, the products from these enterprises had an activity level on the average 12 percent lower than promised by the suppliers.

What brought about the discrepancy of plant record data and the actual activity of cement?

First of all, the cement plants themselves today achieve that grade indicated in the record by stretching it. Secondly, in GOST [State Standards] for 1976 there are certain favorable conditions for the methods used to test this. Calculating the loss of activity with the passage of time it is said in GOST 10178-76: "The plant-manufacturer guarantees that the cement conforms to all the requirements of modern standards, when observing the conditions for transporting it, up to the moment it is received by the cement user but not exceeding 4 months following shipment." This note is made because the plant-suppliers, knowing of this lowering of activity with the passage of time, do not guarantee any reserves against such losses.

Construction laboratories, the majority of which do not have equipment for standard testing, are not able to make an analysis under such rigid time frames. They select an amount of concrete and calculate its strength based on the grade indicated in the record. When pouring monolithic structures, calculations (predictions) are made based on the projected grade. It should not come as a surprise that the actual strength of concrete in such structures proves to be below the projected strength under all conditions.

It is well known that the accuracy of determining the activity level depends a great deal on the methods used for testing. To determine the strength characteristics of cement, GOST 310.1-76 and 310.4-76 suggest preparing samples (small beams from cement mixtures) without having the constant relationship between the water and cement equal to 0.4 as was the practice before, but instead correcting it so that the slump of a cone will be between 106-115 mm. According to this method the water and cement relationship may be not only within the usual allowable limits of 0.38-0.42 but even much less--0.35-0.36. In this case the grade of certain types of Portland cement and slag Portland cement are often a whole step higher than when the relationship is 0.4. It turns out that the very method of testing causes the inaccuracy. Such a situation, in my opinion, is intolerable. The water cement relationship could remain the fundamental stability characteristic of the activity of cement as well as the strength of concrete.

Certainly, the characteristics of the quality of cement based on its concentration and the slump of the cone are important but in no way fundamental. They can have influence as to whether the State Seal of Quality is conferred or when determining the kind of cement but not the grade. And when reviewing the methods for testing cement (and this necessity has already become urgent) the practice of checking the concentration of the mixture on the vibrating table must be abandoned since it is an anachronism. It must be tested on the very same vibration surface on which normal compaction of the mixture takes place.

Builders justifiably insist on including in GOST the precise limitation that the normal consistency for the cement test should not exceed the value of 0.26. Exceeding this value means only one thing--the manufacturer "overdid it" with tripolite admixtures. But adding a clinker of moisture

retaining tripolite would mean lowering the activity of cement. For 20 years now scientists have insisted on regulating the standard consistency of the test, but unfortunately up to now, they have not been able to convince the leaders of the cement industry of this.

V. Sizova's article opportunely raises the question of the necessity of developing a reliable method for accelerating the determination of the strength of cement. But a standard accelerated method with a high degree of accuracy still does not exist. Nor is there one abroad. Too many factors affect the accuracy of any accelerated tests. "Recommendations for an Accelerated Evaluation of the Quality of Cement in Concrete and Designating its Composition," which I. Frenkel and I worked out, proved its value in practice. This method resulted in a guide for selecting the composition of concrete compiled by a staff of prominent scientists-concrete workers. It is valued by builders for the fact that during the course of 1 to 3 days it can simultaneously determine the grade of cement and concrete used with sufficient reliability on the basis of the cement-water factor.

The problem raised in the article "Cat in a Paper Bag" is not new. It must be solved through the application of accumulated knowledge. It is well known that the Portland cement obtained at the best domestic plants is on the level of worldwide standards.

Thus, while simultaneously increasing the volume of production all of the prerequisites are present for increasing the quality of cement. And, it is thought, the questions raised in the newspaper must become a topic for serious discussion by the USSR Ministry of the Construction Materials Industry and by construction ministries and departments.

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